



## **MATERIALS AND FABRICS**

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### **ACCUMOLD**

A process in the manufacture of holsters and many other products from Bianchi. The make-up of Accumold is a laminate material which includes an outer layer of tough nylon fabric, a layer of polyfoam and an inner layer of liner material bonded together under heat and pressure. The resulting product retains its shape well and is not significantly deformed by weight or pressure of its contents.

### **ACCUMOLD ELITE**

Accumold Elite is similar to Accumold in the manufacturing process except the outer layer is a smooth material that looks like leather.

### **ANILINE**

A colorless, oily liquid with an aromatic, pungent odor. It is used, among many other things, in the manufacture of resins, varnishes, printing inks, cloth marking inks, explosives and dyes.

### **CABRETTA**

A leather produced from the skins of sheep that have hair instead of wool i.e., straight-haired sheepskins. The leather is produced in China, South America and Africa. This material offers all of the features required to manufacture gloves, which include a thin tough structure giving strength and dexterity and is hard wearing and comfortable. Much of the tanned product comes from Pittards Tannery in England.

### **CLARINO**

Manufactured by Kuraray Co. Ltd., Clarino is a man-made, synthetic leather which offers several surface types which, among others, include high gloss and a suede surface texture. The suede is used in gloves and is soft and flexible, breaths like leather and is washable and easy to care for.

### **CORDURA**

Manufactured by Investa, Cordura is made with 1000 denier yarn and is one of the toughest fabrics ever made. It is extremely abrasion and puncture resistant. It is also coated with urethane and treated with a durable water repellent for maximum waterproofness.

### **DENIER**

Unit used in measuring the fineness of yarns, equal to the mass in ounces of 29,527 feet of a single strand of yarn. Thus, 29,527 feet of 15 denier nylon, used in nylon stockings, weighs 0.5oz, and in this case the thickness of the thread would be 0.0017 inches. The term was derived from the French silk industry; the denier was an old French silver coin.

### **HEATGEAR (Under Armor)**



Made of 79% Cationic Polyester and 21% Elastane (trade name Lycra). Used as a wicking material to transfer perspiration from the skin to the outer layer of the garment.

### **HIPORA**

Manufactured by MP-ASU of Finland, Hipora is a polyurethane waterproof film. Numerous micro pores are placed throughout the film which shuts out water from the outside, but allows the moisture and warm steam from the body to escape. Used in gloves for pathogen protection.

### **HYDROFIL**

Manufactured by Honeywell, Hydrofil is a highly absorbent and quick drying nylon used in knit, woven and unwoven moisture management fabric systems. It has comfort characteristics of cotton and can hold 15% of its weight in water and not feel damp. Used in linings of gloves and other products.

### **KEVLAR**

Manufactured by DuPont, Kevlar is five times stronger than steel on an equal weight basis, yet, at the same time, is flexible, lightweight, and comfortable. Kevlar is used in high performance protective apparel. It has no melting point, low flammability, and good fabric integrity at elevated temperatures.

### **LYCRA**

Manufactured by Invista, Lycra is a family of stretch fibers which have the ability to stretch up to 600% and spring back to its original length. It can be combined with virtually every other fiber, both natural and manmade, to achieve different levels of stretch and recovery.

### **MICRO FIBER**

Micro fibers were first manufactured in the US in 1989 by DuPont and are the thinnest of all man-made fibers. These fibers measure less than one denier and are four times finer than wool, three times finer than cotton, twice as fine as silk and one hundred times finer than human hair. Micro fibers are made of polyester, nylon, rayon and acrylic. Because air passes easily through this fabric, moisture is wicked away from the skin's surface to the outer face of the fabric.

### **NEOPRENE**

An extremely versatile synthetic rubber which resists degradation from the sun, ozone and weather, remains useful over a wide temperature range, displays physical toughness, and resists damage caused by flexing and twisting. Used in the manufacture of gloves, among many other applications.

### **NOMEX**

Manufactured by DuPont, Nomex is a man-made fiber resistant to heat and chemicals and is also used for thermal insulation.

### **NYLON**

The second most used man-made fiber in the US behind polyester. The first commercial production was in 1939 by DuPont.



## **NYTANEON**

Nytaneon, a material from BlackHawk, is strong, long lasting, and very quiet in its use in tactical products. BlackHawk sought the strength of titanium fiber with the flexibility of premium grade nylon.

## **OLEORESIN CAPSICUM (OC)**

Oleoresin Capsicum, more commonly known as “Pepper Spray”, is the extract of the dried ripe fruits of Capsicums (chile peppers) and contains a complex mixture of essential oils, waxes, colored materials and capsaicinoids. Capsaicinoids are produced by glands in the pepper’s placenta, which is the top of the partition just below the stem. The placenta is about 16 times more pungent than the flesh. Civilian OC defense sprays will see “5%” or “10%” pepper spray on the canister. Unfortunately, these percentages do not correlate with effectiveness because they only measure the percentage of OC relative to the other ingredients in the canister. Other ingredients include the carrier of the OC, a propellant, and often marking dyes. The heat or strength of the OC is determined by the quantity of an active ingredient called Capsaicin; the higher the Capsaicin amount the hotter the OC. Typical civilian OC Spray contains 18% Capsaicin.

## **POLYCARBONATE**

Polycarbonate is tough, dimensionally stable, transparent thermoplastic that has many applications which demand high performance properties. Polycarbonate maintains its properties over a wide range of temperatures, from –40F to 280F. The window grade, used in the manufacture of eyewear, is optically clear, providing total luminous transmittance and very low haze factor. Polycarbonate is virtually unbreakable which makes it resistant to repeated blows or shattering.

## **POLYESTER**

The most used man-made material in the US. First manufactured in 1953 by DuPont it is used in, among other things, the manufacture of clothing.

## **POWERSHIELD**

The cut resistant Powershield X3 liner is comprised of Spectra, fiberglass, and polyester to provide 10 times the cut resistance of 100% Spectra of the same weight.

## **PRIMALOFT**

Manufactured by PrimaLoft Insulation Technology, PrimaLoft is a down-like insulation that mimics the lightweight compressibility and warmth of down. It continues to insulate even when wet.

## **REFLEXITE**

Manufactured by Reflexite, these microprisms are used in the manufacture of reflective material used on gloves and vests, among other things. There are two kinds of retroreflective material, glass beads and microprisms. Microprisms are shaped like tiny pyramids and reflect 250% more light than glass beads.

## **RAZORNET**



Manufactured by Razornet, it is a blend of Spectra, fiberglass and polyester yarns.

### **SAFARILAMINATE**

Safariland's proprietary process for producing moisture insensitive, molded leather holsters which will frictionally engage an irregular object. The integrally bonded laminate consists of an outer layer and an inner layer of leather and a central layer of moldable thermoplastic. The process of lamination is accomplished by applying a nitrile rubber adhesive to the central layer and the outer-layers, assembling the layers and applying heat and pressure. Leather holsters tend to lose their shape when exposed to moisture and their surface is subject to scuffing; Safarilaminate eliminates this problem.

### **SCOTCHGUARD**

Manufactured by 3M, Scotchguard Protector is applied to leather during the tanning process. It bonds to the leather to not only protect against water, oil or dirt stains, but also to make leather more durable and resistant to wear. It doesn't cause leather to lose any of its natural qualities such as look, feel or breathability.

### **SPANDEX**

Manufactured by DuPont, Spandex is made of a long-chain synthetic polymer comprised of at least 85% of a segmented polyurethane. Major characteristics are as follows:

- Can be stretched more than 500% without breaking.
- Retains original length and shape after repeated stretching.
- Lightweight, soft and smooth.
- Stronger, more durable and higher retractive force than rubber.

### **SPANDURA**

Spandura is a fabric that combines the toughness of Cordura and the flexibility of Lycra. Each yarn consists of Cordura fibers spun around a Lycra core. This blend results in a fabric that feels soft, supple and stretchy and provides a high level of abrasion resistance.

### **SPECTRA**

Manufactured by Honeywell, Spectra is one of the world's strongest and lightest fibers. It is made of a high molecular weight polyethylene and it is, pound for pound, ten times stronger than steel and more durable than polyester. With outstanding toughness and extraordinary viscoelastic properties, Spectra fiber can withstand high-load strain-rate velocities. Light enough to float, it also exhibits high resistance to chemicals, water, and ultraviolet light. It has excellent vibration damping, flex fatigue and internal fiber-friction characteristics, and its low dielectric constant make it virtually transparent to radar.

### **SUPERFABRIC**

Manufactured by HDM, Inc., puncture protection is provided by tiny, hard guard plates that are adhered to conventional and non-conventional fabrics. Because the gap between guard plates is very small, it provides high levels of protection from sharp, pointed objects when using multiple layers of fabric.

### **THINSULATE**



Manufactured by 3M, Thinsulate microfibers are about ten times smaller than fibers of other insulation material. The result is highly concentrated fiber material which traps the air and reflects the body heat; the two most important factors in keeping the body warm.

Thinsulate offers almost one and a half times the warmth of down, and twice the warmth of other high-loft insulation materials.

### **TOUGHTEC**

Toughtec is an abrasion resistant, leather-like grip fabric made of 100% polyester backing with a rubber overcoating. Coated with a copolymer formula on one side, it is rugged, non-slip in wet, dry, hot or cold conditions. Among its applications is use in the palm and fingertips of gloves.

### **VELCRO**

A two part cloth fastener consisting of a soft material made up of many tiny loops, and the other part consists of many tiny, stiff hooks. When mated, the two parts stick firmly together. In the early 1940's a Swiss inventor took his dog for a walk. Upon his return home he noticed that his dog's coat and his pants were covered with cockleburs. Upon study under a microscope, he noticed that the burrs had a natural hook shape. This discovery led to the development of Velcro many years later when technology became available to design machines to manufacture the soft loop and the stiff hook material. The word Velcro is derived from the French words "velour" and "crochet".

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