Personal Protective Equipment

An Overview of the Main Types of Glove Materials

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MCR Safety literally has over 1,000 different gloves utilizing a multitude of different materials. Protecting today's modern day employee from all the potential workplace hazards that exist requires a wide assortment of options. So asking which glove material makes up the majority of its gloves opens up a lengthy discussion. Put it this way, MCR lists over 40+ materials available under the MCR Safety ***website—glove section*** making up these 1,000 plus gloves.

You might be wondering how MCR got to a point where 40+ materials were needed. Well, up until around 1970, leather, cotton and jersey fabrics represented the bulk of the industry's hand protection offerings. MCR offers 40+ material options because each material improves upon one of three areas:

- Better comfort
- Better fit
- Better overall protection

The list of glove materials runs from natural, such as bamboo and cotton, all the way to synthetic string knit materials, such as DuPont Kevlar. Covered here are some of the most requested materials.

High Performance Materials (Primarily for Cut and Abrasion Environments)

High performance materials provide users the greatest protection. There has been a progressive shift to utilizing more seamless knit shells as liners because of their enhanced features.

High performance string knits offer enhanced protection for abrasion, cut, tear, thermal and puncture resistance. The most common, DuPont™ Kevlar and DSM Dyneema®, are covered more in the next section.

Here are four of the most requested high performance materials:

1) DuPont™ Kevlar® withstands temperatures of up to 900° F. Its tensile strength is 5 times stronger than steel in its ability to withstand the amount of tension applied. MCR Safety is a DuPont licensed manufacturer for KEVLAR® brand fiber. MCR Safety is unique in respect to being the only licensed manufacturer which also spins our KEVLAR® yarn.

2) **DSM Diamond Tech/Dyneema®** is recognized for excellent abrasion and cut protection levels. Additionally, when combined with fiberglass or steel, it achieves higher levels of cut resistance. Dyneema launders well even with the use of bleach. Additional hand protection styles combine HMPE with other materials to offer a highly comfortable fit, often with a palm dip to enhance grip.

Features:

- Provides one of the highest levels of safety with cost-effective protection and comfort.
- World's strongest fiber (15 times tensile strength of steel on an equal weight basis).
- Incredibly tough protection against mechanical hazards combined with an outstanding sensitivity and cost effectiveness.
- Fiber is thinner and more flexible than traditional PPE material while offering higher protection.
- So soft and comfortable to wear, gloves are more likely to be worn.

- Fiber adapts to skin temperature, while transporting moisture to the outside of the glove.
- By providing a higher level of protection, injury costs can be reduced.
- Achieves one of the highest levels of abrasion resistance.
- Highly resistant to chemicals.
- Machine washable and can be reused several times for a longer lifetime.

3) **Steelcore® II** Two strands of stainless steel wrapped with a soft knit yarn for a comfortable fit.

4) **Alycore™** is one of the highest rated ANSI cut and puncture resistant materials available. Alycore™ gloves offer maximum dexterity and sense of touch due to the high degree of flexibility and patent pending construction. All Alycore™ styles provide cut performance levels, which exceed ANSI A9 and CE cut level 5 ratings. All styles are launderable (machine wash, do not dry).

Leather (The Main Glove for Construction, Lumber, Railroad, Ranching and Welding)

Common characteristics to all types of leather include superior abrasion resistance, tensile strength, breathability and heat resistance. Often overlooked characteristics include the ability to absorb shock and provide good puncture resistance.

The grain leather is the external portion of the hide and provides a smooth, soft, and comfortable leather. Grain leather allows for more dexterity and sense of touch. It is priced higher than split leather due to its demand from the automobile, furniture, sporting industry and apparel market.

The split leather is cut from the inner portion of the hide closest to the flesh. Leather's strength is due to the density of fibers and will vary depending on which portion of the hide is used. Split leather is more commonly used in the glove industry due to its abundance and diversity.

The most common leather types are cowhide, goatskin, pigskin, deerskin, and synthetic leather. Each type of leather offers its own benefits.

Types of Leather:

- **Cowhide:** Most commonly used leather within the glove industry due to its plentiful availability.
- **Goatskin:** Proven to be very strong leather with great tensile strength. Goatskin also has a natural lanolin content that keeps gloves and hands soft. Goatskin is typically too thin to split and therefore provides greater tactile sensitivity.
- **Pigskin:** Very abrasion resistant leather due to its natural fiber make-up. The leather breathes, allowing it to retain its softness even after being wet. Pigskin gloves are useful in wet applications, as this glove will not get as stiff as cow leather. Pigskin can also be split.
- **Deerskin:** Known to be one of nature's most luxurious leathers, providing all-day comfort and great sensitivity to touch due to its softness.
- **Elkskin:** Recognized as one of the most durable and softest leathers such as premium Red Ram™.
- **Synthetic**: Breathable, lightweight, and the soft fabric provides enhanced dexterity and gripping properties.

Cotton (Everything from Product Protection, General Purpose Protection and Moderate Heat Environments)

The traditional cut-n-sewn cotton glove was one of the first hand protection offerings. New introductions include cotton canvas, double palm and dotted double palm styles available in high visibility yellow, green or orange fabrics.

Industry Applications:

- **All cotton gloves:** General purpose, small parts handling, light manufacturing and automotive plants.
- **Lisle/inspectors:** Keeps oil and grease off products, computer chips, low lint applications, cosmetics, electronics, film processing and pharmacy.
- **Chore gloves:** Farming, oilfields and foundries.
- **Double palms:** Oilfields, foundries and light heat applications.
- **Hot mill:** Medium heat applications and some foundry operations.

String Knits (General Purpose Protection)

String knit gloves were originally designed as glove liners. Today, they have progressed into the most economical general-purpose work glove due to their versatility and comfort. The most commonly used yarns include cotton, polyester and nylon yarn either knitted separately or blended.

Previously featured on MCR Safety's blog.

For MCR Safety's full line of gloves, please visit MSCDirect.com.

