Personal Protective Equipment

What Goes Into Making A Rubber Glove and Why It Matters For Electrical Work

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Rubber insulating gloves are among the most important articles of personal protection for electrical workers. Rubber doesn't conduct electricity, which means it's a reliable type of protection against shock. Rubber is a natural insulator, and unlike plenty of other materials that act as conductors, it will stop electric currents from travelling through your skin.

A brief history of natural and synthetic rubber

Rubber has been processed by humans since as early as 1600 BC, when early indigenous Mesoamerican cultures produced stabilized rubber for containers, waterproofing and recreational balls. One species of rubber tree is mostly responsible for the majority of natural rubber that exists today, found natively in South America and common to Southeast Asian plantations.[1] Thailand, Malaysia and Indonesia are three of the top producers of natural rubber.

Rubber tapping is the process by which ***latex***, a milky white substance, is harvested from a ***rubber tree***. A groove is sliced into the bark of the tree with a hooked knife, which disrupts the plant ducts and releases the latex. The latex flows down the grooves into large cups, where they are collected and sent on their way to be processed into items like rubber gloves, shoes, wetsuits and hoses. Trees must be approximately six years old to be tapped for latex.[2]

The process of hardening rubber—vulcanization—was rediscovered in the 1800s by Charles Goodyear when he accidentally dropped natural rubber on a hot stove, where it hardened and stabilized as it "cooked." The onset of World War II cut off U.S. access to 90 percent of its natural rubber supply, which prompted the need for synthetic rubber, which is made of petrochemicals. By 1945, four U.S. companies were collectively producing about 920,000 tons per year of synthetic rubber: Firestone, Goodyear, United States Rubber Corporation and Goodrich. To this day, most tires are made of synthetic rubber.

Honeywell Salisbury rubber gloves: made with precision and a trusted process

Incorporating high dielectric and physical strength, flexibility and durability, Honeywell Salisbury

rubber insulating gloves for electrical workers have earned the reputation for superior performance, meeting and exceeding the requirements of current ASTM D120 specifications and IEC EN60903 Standards.

Honeywell Salisbury rubber insulating gloves, made with natural rubber, are manufactured by dipping porcelain forms into a tank of liquified rubber. The thin layer of rubber which results is allowed to dry, and the process is repeated until the required thickness is reached. Depending on the voltage class of the glove, this dipping-drying-dipping cycle may need to be repeated 30+ times.

After the desired thickness is achieved, the gloves are allowed to dry. Once dry, they are cut to length, the reinforcing bead is rolled and the ASTM label and manufacturing information is applied, along with any additional permanent marking that may be requested. The gloves are cured in an autoclave under steam pressure and heat.

After curing, the gloves are visually inspected. Gloves with visual imperfections are rejected. The gloves are then given a halogenation treatment (chlorination) to increase the comfort and wearability. The gloves are electrically tested following ASTM D120/IEC 903 specifications. Following the electrical test, the gloves are given a final visual inspection. The gloves are then ready to be boxed and shipped.

Honeywell's ***ELECTRIFLEX***™ Gloves are available in black or in contrasting two-color combinations. The contrast between the thin outer color against the inner color makes inspecting for cuts and tears easier when the glove is inflated or stretched. These gloves help minimize hand fatigue and maximize performance, all while giving linemen and other electrical workers the critical protection they need. To learn more about their trusted and worker-focused products, visit Honeywell's ***website***.

About the Author: Russ Owen, CUSP, served in the U.S. Military for 21 years, 13 of which were spent in the U.S. Army doing power generation and distribution, and 6 years in power distribution safety. Now he is a senior technical lead at Honeywell Salisbury and serves on ASTM International committees (formerly known as the American Society for Testing and Materials). His experience as a lineman gives him first-hand insight into how to make Honeywell's products both high-quality and user friendly.

This article is part of a series. For more electrical safety facts and tips, read Russ's previous ***blogs***.

Sources:

1 - ***https://www.ace-laboratories.com/how-rubber-is-made-for-industrial-uses/***

2 – Wikipedia: ***https://en.wikipedia.org/wiki/Rubber_tapping*** **and** ***https://en.wikipedia.org/wiki/Natural_rubber***

3 - American Chemical Society National Historic Chemical Landmarks. U.S. Synthetic Rubber, ***https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/syntheticrubber.html#us-synthetic-rubber-research***

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