

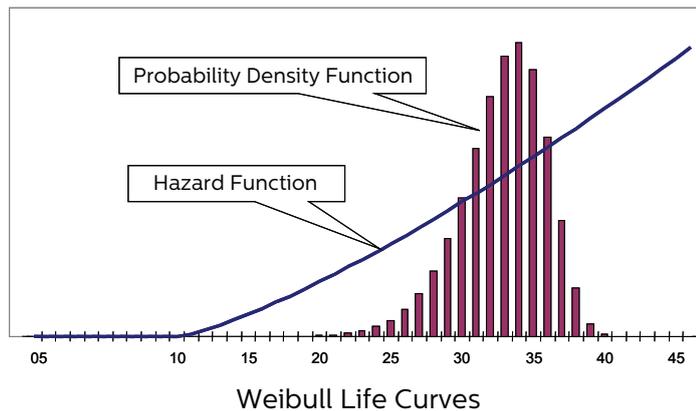
Long Service Life

Kerite (by reputation, field history, and warranty) has the industry's longest-life, URD, medium voltage underground cable. Clearly there is value for the cable user in installing cable that will provide trouble-free, long-life service. However, since this benefit is not fully appreciated for many years in the future, this Total Cost of Ownership (TCO) aspect is sometimes neglected in the cable evaluation. Furthermore, the topic is confused by competitive claims that make it hard for a user to objectively differentiate cable based on expected life.

The first Kerite underground residential cable was installed in 1926 and Kerite cable has yet to see any evidence of age-related deterioration or any failure due to insulation breakdown. Based on this experience, Kerite warrants its medium voltage cable without time limit. Basically, the cable will last as long in normal operation as the circuit needs to operate. No other manufacturer has this length of warranty or has the history to justify a similar position. This basic difference between Kerite and all others simplifies life cost analysis.

Thinking Statistically

Developing a statistical framework is helpful in understanding any cost analysis model. If life expectancy claims are to be made, they should be presented in a statistical context. Expected life means the product's average life. Since electrical products (such as cable) tend to follow a Weibull distribution (which is similar to a normal distribution), we can think of cable as having a bell-shaped life curve (the probability density function). The expected life is the average of this distribution – with 50 percent of the population failing before, and 50 percent after, the average.



Underlying the probability density function is the Weibull hazard function, which identifies the product's proneness to fail in any given year.

With cable there is an additional factor that impacts life: the fact that it is repairable. A utility does not necessarily replace cable after the first failure on a length. Typically, utilities follow a replacement policy that is sensitive to both cost and to customer service expectations.

An investigation of actual utility practices has determined that once failures per mile reach five occurrences, utilities abandon practices of replacing a section of cable at a time. They then embark on half-loop, loop and total subdivision replacement. Therefore, from a practical perspective, five failures in a mile is the end of life for URD cable. This number has been fairly consistent across many utilities. This standard practice implies that there is a universal rate-payer tolerance limit.