

Cable Lore

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THE HARDNESS OF INSULATIONS AND JACKETS REFLECT THEIR PHYSICAL HEALTH

One characteristic or property of insulations and jackets that receives little publicity is hardness. This is a most important property and, depending on the compound, can influence cable flexibility and other cable features.

With some experience and basic knowledge of the various polymers, hardness can be an excellent criteria for measuring the physical health of an insulation or jacket.

Hardness is usually measured with a "Shore Durometer". This is a small instrument having a dial calibrated from 0-100. It contains a sharp point that, when pressed into an insulation or jacket, will transfer the energy to an indicator and a value read on the dial. To get some feel for various degrees of hardness, the fleshy part of the palm of your hand would register from 0-5. The cover on a Webster Intercollegiate Dictionary would be approximately 96.

Once a compound formula has been established, it will have a characteristic or inherent hardness. If during a cable application this hardness should change significantly, it would indicate that degradation or deterioration has taken place. For example, a general-purpose neoprene jacket has a shore hardness from 60-70. If this jacket should go to 90, it is a good indication it has been exposed to elevated temperatures and is getting brittle.

As a rule elevated temperatures or loss of plasticizers will increase hardness and a good "fingernail" test is a good indicator that trouble could be on the way.

By the same token, a significant loss in hardness would be a good indicator that something in the application is deteriorating cable components.

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