# NIST releases new standard for semiconductor industry

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A wide range of optical electronic devices, from laser disk players to traffic lights, may be improved in the future thanks to a small piece of semiconductor, about the size of a button, coated with aluminum, gallium, and arsenic (AlGaAs).

The 1-centimeter square coating, just 3 micrometers thick, is the first standard for the chemical composition of thin-film semiconductor alloys issued by the National Institute of Standards and Technology (NIST).

Standard Reference Material (SRM) 2841 was requested by the compound semiconductor industry to help measure and control thin film composition as a basis for optimizing material and device properties. The SRM can be used to calibrate equipment for making or analyzing these materials. Buyers are expected to include companies that grow or characterize thin films or use them to make devices, as well as government and university laboratories.

AlGaAs is used as a barrier material to increase conductivity in high-speed circuits for wireless communication; semiconductor lasers for optical disk drives, bar code scanning, xerography, and laser surgery; and light-emitting diodes for remote controls, traffic lights, and medical instruments.

The NIST standard is expected to increase the accuracy of chemical characterization of AlGaAs films by an order of magnitude over the current state of the art. Improved accuracy will reduce wasteful

duplication of reference wafers, increase the free exchange of thin-film materials between vendors and their customers, and ultimately improve the accuracy of data on relationships between material composition and properties.

SRM 2841 can be ordered at ts.nist.gov/ts/htdocs/230/232/232.htm.

Source: NIST

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