



ESL ELECTRO-SCIENCE

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CERAMIC TAPE CAPACITY EXPANSION FOR ITS SPECIALTY TAPE SYSTEMS

KING OF PRUSSIA, PA, November 15, 2004 - ESL Electro-Science has today announced plans for a \$1,500,000 dedicated ceramic tape facility, to be installed in a 2,000 square meter [about 20,000 sq ft] building that ESL acquired earlier this year next to its existing headquarters in King of Prussia, PA. Two new 17-meter [about 50 ft] tape casters have been purchased which, with other additions, will increase the ceramic tape capacity by almost 500 %, and allow production of tape widths up to 350 mm and of thicknesses in the range 10 micrometers to 1 mm.

The new facility will allow state of the art process and dimensional control. The company has also added equipment to print, laminate, and fire multilayer assemblies for testing, quality assurance and prototype manufacturing.

ESL is a world leader in the production of thick-film materials for microelectronics and related applications in an ISO 9001:2000 environment. ESL is also the world's largest supplier of inks or pastes for stainless steel substrates. Recent emphasis has been placed on the development of lead-free and cadmium-free 'green' materials.

In addition to screen-printable inks or pastes, ESL has for many years manufactured ceramic tape systems with ranges of properties that are unique. These include lead-free, low-loss LTCC systems with dielectric constants ranging from 4.2 to 250 and permeability ranging from 50 to 500 (compatible with competitors' LTCC tapes), low-temperature transfer tape systems for various substrates, and high-temperature tape systems such as zirconia and alumina. For all lead-free tape systems, ESL has also developed compatible low-cost and lead-free screen-printable inks or pastes for co-firing or postfiring.

With over forty years' experience in thick-film materials for sensors, heaters and microelectronics, ESL has brought its scale-up and manufacturing expertise to tape products. The company says that the demand for its ceramic tape and tape casting capability has risen throughout 2004, with many new customers involved with components, microelectronic packages, etc.