MATERION

COATING MATERIAL NEWS

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FUNDAMENTALS OF THIN-FILM GROWTH AND INFLUENCES ON MECHANICAL-ENVIRONMENTAL DURABILITY PROPERTIES

Anti-reflection coating that eliminates reflected visual glare and harmful UVC and short wavelength blue light.

Advances in thin-film coating technology during the past decades have focused on improving the quality of deposited layers through refinements in materials and deposition processes. Material improvements have included lowering impurity content, controlling chemical composition, and preparing physical forms that increase source utilization efficiency. Chemical processing has eliminated impurity-related detrimental contamination; reduction of the concentration of multiple oxidation states, that can introduce a variety of evaporation or sputtering efficiencies, has resulted in better repeatability of film composition and morphology.

Deposition processes have evolved in conjunction with greater demands on optical and mechanical film quality, durability requirements, and expanded applications. The introduction of new materials, especially relevant to mechanical properties, has also driven deposition process development. It has been known for some time that the energetics of the deposition process play the dominant role in not only film morphology and density, and therefore strength, but also composition as it influences transmission losses and high-energy laser damage thresholds.

The original Structure-Zone Model (SZM) proposed by Movchan and Demchishin related growth micro-structure to substrate temperature, T, which was the source of morphological energy. The microstructure progresses from one that is characterized by low packing densities at low temperatures and large void volume, to one that is more densely packed in columnar structures at higher temperatures. Read more...

GROWING MARKET FOR OLED INNOVATION

Globally, there is a proliferation of devices for commercial and consumer use that require an electronic display. Products range from very large to tiny and include mobile phones, digital media players, flexible signs, curved display screens, car radios, digital cameras, digital watches, televisions, and more. There is a growing need for technologies that reduce energy consumption and improve color characteristics for display screens. Industry is turning to organic light emitting diodes (OLED) to address these concerns.

Advantages of OLED Materials

The majority of display applications favor the higher light capability of OLEDs. Compared to LEDs, they provide brighter illumination, greater flexibility, and consume less power. The display industry is seeking new means to improve performance and reduce cost. The materials used in the composition of OLEDs contribute substantially toward those goals. Materion provides critical products and services to support the manufacture of more efficient, cost-effective OLEDS. Our highly engineered materials meet stringent requirements for purity, oxygen levels and moisture protection and are available in a wide variety of precious and non-precious PVD forms. They assist energy savings and richer color display that advances the field of OLED technology.

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Updated Chemicals Online Catalog

From *aluminum* to *zirconium*, Materion is your single reliable source for quality materials. View our online inorganic chemicals catalog which now links to new and approved SDS (Safety Data Sheets). Plus, our streamlined search function has been modified for simpler access to all our inorganic chemical products.

Request a copy of our printed Core Inorganic Chemicals Catalog at OrderChemicals@materion.com or Download the pdf.

Materion Advanced Materials Group
407 N. 13th Street Milwaukee, WI 53233
AdvancedMaterials@materion.com

www.materion.com
USA: 800.327.1355

Europe: +44 1635 223838
Asia: +65.6559.4450