



Structured Materials Industries, Inc.

Material System	Applications	Attributes	Substrates
Transparent Conductive Oxides (TCO's): ZnO, ZnMgO, ITO, CuAlO	Photovoltaics Displays, Sensors Electrochromics Solid State Lighting (LEDs)	Low defects, Low substrate temperature and High deposition rates, Large Areas	Si, GaAs, Glass, GaN, Polymer, Plastics, Metal foils
Thermoelectrics (TEs): SiGe, Si	Solid State Cooling, Conversion of heat into electricity	Superlattices of Polycrystalline material at low temperatures	Polymers, Semiconductor wafers
Metals and Alloys: Many	Decorative coatings Semiconductors, Electro-optics, Contact layers in general	High deposition rates, Low temperatures	Polymers, Ceramics, Semiconductor wafers
Amorphous hydrocarbons (without and with metal) Me-C:H	Tribological coatings	Low substrate temperature and high deposition rates	Polymers, Turbine blades, Tools
Oxides in general: ZrO ₂ , TiO ₂ , Al ₂ O ₃ , PZT, BST, YBCO, and so on	Dielectrics, Ferroelectrics, Tribological, Passivation, Protective coating on implants (Dentistry), Optical/Antireflection coating, Superconductors	Low substrate temperature, Large area	Glass, Polymers, MEMS/actuators, Disks, Semiconductor wafers, Sensors, Medical components, Tools, and so on
Magnetic materials (for example): SmCo	Soft and hard magnetic films	High deposition rate	Thin film sensors microactuators

Table 2. Some existing and possible applications of GFHC-SD systems