Scienstry

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Good News

1. We started to provid wider switchable films in 2023. Our new production line has been able to produce 3G Switchable Film™ with width up to 1.65 m or wider. Our standard length is 2.8 m and maximum length can be up to 6 m. Since all of our 3G Switchable Film™ are pre-shrunk, an over long length will lose pre-shrunk property in machine direction. Therefore, we may provide width of 1.24 m, 1.4 m, 1.5 m and 1.6 m and length of 2.8 m or longer.

2. Unlike other liquid crystal smart films in the market, 3G Switchable Film™ is only liquid crystal smart film which has been proven suitable for outdoor applications, because several game-changing innovations and patented technologies, such as UV and IR stabilizing technologies, have been applied in our products. So far, no other UV and/or IR stabilizing technologies are successful in the market and international patent systems.

   For over thirty years, liquid crystal smart film/glass can't be used for outdoor applications, because liquid crystal molecules are naturally vulnerable for UV and IR. The most common use of glass is as a window, but the smart glass can't be used as exterior glass. This defect seriously affects application scope of the smart glass. We believe that this difficulty should be solved by chemists and material scientists, and Scienstry is good at organic chemistry and material science. After over decade of R&D, we have completely solved the stability problem of liquid crystal smart film/glass for outdoor applications and dozens of other serious problems in the smart glass industry.

   To solve the most challenging problem of UV stability, we invented a new type of liquid crystal molecules which has same optical and physical functions like other liquid crystal molecules used in 3G Switchable Film™, but the new liquid crystal component can effectively absorb UV energy and convert itself into a high-energy compound, just like that cholesterol absorbs UV light and turns itself into vitamin D. What's even more amazing is that the new high-energy compound can turn back to its original molecule through heat dissipation. Such energy transfer mechanism may efficiently absorb the destructive high energy of UV light and convert the high energy to a little bit of heat and release it safely. It likes to provide a molecular protective coating to all components in the smart film. Sunscreens use similar principle to protect our skin. With help of the UV stabilization technology, UV stabilities of our 3G Switchable Film™ and new smart glass increase over 50 times to 100 times and the lifespan of the smart glass is close to normal glass. Therefore, the huge emerging market of outdoor applications unfolds before us. All of outdoor applications and new-types of devices are protected by our patents. The new UV stabilizing compounds can be detected non-destructively, and imitation products will be required to be removed within the validity periods of the patents. The rights and interests of the users can be effectively protected.

3. In the smart glass/film industry, "trading" phenomenon is common, meaning improving one feature by reducing another feature. For example, improving transparency by reducing usage of liquid crystal usually causes reduction of scattering, because each microdroplet of liquid crystal provides both scattering in power-off state and haze in power-on state. Although less density of microdroplets "improves" transparency, the treatment reduces scattering. Since such trading treatment helps to reduce costs, so some smart film manufactures like to use. It is very difficult to provide net-benefits in product improvement. 3G Switchable Film™ has both best transparency and best scattering. There is a dearth of Ph.D. level chemists and material scientists in the smart film/glass industry.

   Unlike other smart film manufacturers, Scienstry always adheres to the highest standard of the industry to provide net-benefits in our new products. Each of more advanced products (with higher product code) contains one or more of superior features and none of the features in the lower-level products are reduced. We abandon "trading" in product performance with our strong R&D capability. Only company with strong capability in R&D, especially in organic chemistry and material science, can keep such policy.

   However, we met a new challenge. Actually, we started to develop wider films a few years ago, but unit prices of wider films would be higher, because unit prices of wider ITO films were higher and yields of producing wider films were lower. Common treatment is simply increasing prices of wider films. With the highest standard, we consider

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that it is another kind of trading for our customers and users. We believe that an advanced product will eventually replace the old products. The time of product renovation starts with price reduction. As we clearly saw in TV and camera industries, although LCD TV and CRT TV coexisted for ten years and photographic film/camera and digital camera also coexisted for ten years, CRT and photographic film/camera were out of business in only one year. Increasing unit price does not conform to the development trend. Things that are not in line with the development trend are exactly what we want to avoid. On the other hand, cut-throat price competition always leads a poor quality. Scienstry should enable to make a healthy cost reduction by process innovation and enlarging applications and attracting more large companies to participate. After two years of development in machinery and process, we are able to compensate all of increased costs in materials with the higher yield of production. Due to resolving a long-lasting problem that is widely existed in industries in producing wide and thin sheet materials, our machinery and process have improved both yield and quality of flatness. So, once again, we are able to keep same unit prices for all of the wider films, especially in this period of high inflation. Actually, our prices have been kept unchanged over 10 years!

4. For selected glass companies or early participants, we may basically provide "free licensing" for making and selling and using the patented new devices and new applications with a registration in Scienstry and use of Scienstry's 3G Switchable Film™ or resins. We have successfully used such new materials and new devices in many of world-class projects for outdoor applications, including entire coverage of cruise ship in Abu Dhabi, UEA, automobile glass on luxury cars such as Rolls Royce and several tens-thousand square meter coverage of walls and roofs of the architectural complex of casino, mall and hotel in Philippine. Click here for a video 1 and video 2. New applications include putting a smart film on an existing window for projection.
   New patented/patent pending devices include:
   Switchable Projection Panel. Layer structure: glass/air gap/smart film/air gap/glass;
   Switchable IGU. Layer structure: glass/air gap/smart film/air gap/glass/air gap/glass;
   Liquid resin laminated switchable panel. Layer structure: glass/cured resin/smart film/cured resin/glass;
   Liquid resin laminated switchable IGU. Layer structure: glass/cured resin/smart film/cured resin/glass/air gap/glass.

   This technology allows anyone to produce laminated smart glass in about 1/3 cost at any place without any large equipment. Major advantages include using chemical bonding like paint bounding provided by the cured resin to replace physical bounding like tape bounding provided by interlayer in autoclave lamination, and having a very simple and very economical manufacturing process. The technology and products face billions USD emerging market with protection of multiple international patents. Click here for a video.

5. We also invented technology of Vacuum Liquid Resin Lamination (VLRL) and Vacuum Liquid Resin Laminated Glass (VLRLG) to produce similar laminated glass like conventional laminated glass made by autoclave process. Layer structure: glass/cured resin/glass.

   This technology allows anyone to produce the laminated glass with about 1/4 cost in any place without any large equipment. This technology can also produce super strong laminated glass, hurricane proof glass and bulletproof glass with fewer layers. Basic layer structure: glass/composite layer/glass.
   The patented composite layer not only provides super strong adhesive to the glass, but also provides high strength that can quickly spread the impact stress laterally, therefore, effectively reduce the strength of impact by greatly enlarging impacted area. This basic layer structures can be superimposed to make hurricane proof glass and bulletproof glass. The VLRL bulletproof glass reduces thickness in half in comparing to conventional bulletproof glass. The technology and products will impact tens-billions USD of existing market and face great emerging market.

   All of above-mentioned and patented/patent pending new devices can also include Scienstry's dark films and anti-reflective films. Click here for a video. Scienstry has contributed most of advanced features of smart film/glass in outdoor applications and projection applications and new manufacturing processes of smart glass, and greatly extended product lifespan.