

EDGE PROTECTED BARRIER ASSEMBLIES

Background

Emerging solar technologies such as organic photovoltaic devices (OPVs) and thin film solar cells like Copper Indium Gallium di-Selenide (CIGS) require protection from water vapor and need to be durable (e.g., to ultra-violet (UV) light) in outdoor environments. Typically, glass has been used as an encapsulating material for such solar devices because glass is a very good barrier to water vapor, is optically transparent, and is stable to UV light. However, glass is heavy, brittle, difficult to make flexible, and difficult to handle. There has been interest in developing transparent flexible encapsulating materials to replace glass that will not share the drawbacks of glass but have glass-like barrier properties and UV stability, and a number of flexible barrier films have been developed that approach the barrier properties of glass.

Solar devices are used outdoors, and so are exposed to the elements, including wind, water and sunlight. Water penetration into solar panels has been a long-standing problem. Solar panels may also be deleteriously affected by wind and sunlight.

Many flexible barrier films are multi-layer film laminates. Any multi-layer film laminate has the potential for delamination, especially at the edges. Reducing delamination at the edges will improve overall performance of the barrier films.

Summary

~~The present application is directed to~~ An aspect of the present invention provides an assembly comprising an electronic device, and a multilayer film. The multilayer film comprises a substrate adjacent the electronic device, a barrier stack adjacent the substrate opposite the electronic device, and a polymer weatherable sheet adjacent the barrier stack opposite the substrate. The multilayer film has been fused.

Brief Description of the Drawings

The disclosure may be more completely understood in consideration of the following detailed description of various embodiments of the disclosure in connection with the accompanying drawings, in which:

Figure 1 illustrates an assembly according to an embodiment of the present disclosure using a schematic cross section view.

Figure 2 illustrates an assembly according to a second embodiment of the present disclosure using a schematic cross section view.

Figure 3 is an elevated view of an assembly according to the present disclosure.

Figure 4 is an elevated view of an assembly according to the present disclosure.