MULTILAYER CONSTRUCTION INCLUDING BARRIER LAYER AND SEALING LAYER

Technical Field

[0001] The present disclosure relates to multilayer constructions having a barrier layer as well as a sealing layer. The present disclosure further relates to devices containing the multilayer constructions.

Background

[0002] Multilayer constructions including a barrier layer decrease the passage of one or more gases and/or liquids through the construction. Some typical barrier layer materials include, for instance, metals, metal oxides, and diamond-like glass. However, the presence of defects in such barrier layers negatively affects the barrier performance of the barrier layer. A need therefore exists to counter the effects of defects in barrier layers.

Summary

[0003] The present disclosure provides multilayer constructions designed to mitigate one or more problems associated with defects present in a barrier layer.

[0004] In a first aspect, the present disclosure provides a multilayer construction. The multilayer construction includes a barrier layer having a major surface, a sealing layer including crosslinked silsesquioxane disposed on the major surface of the barrier layer, and a polymer layer including a crosslinked polymer disposed adjacent to a major surface of the barrier layer opposite from the sealing layer.

[0005] The present disclosure also provides another multilayer construction. The multilayer construction includes a barrier layer having a major surface and a sealing layer including crosslinked silsesquioxane disposed on the major surface of the barrier layer. The multilayer construction further includes a substrate disposed adjacent to a major surface of the barrier layer opposite from the sealing layer, and a polymer layer including a crosslinked polymer disposed between the barrier layer and the substrate.

[0006] The present disclosure also provides a device. The device includes the multilayer construction according to the first or second aspect. Further, the device is usually selected from a light generating device, a display, a solar cell, or a vacuum insulation panel. In a second aspect, the present disclosure provides a device comprising the multilayer construction as defined above, the device selected from a light generating device, a display, a solar cell, or a vacuum insulation panel.

[0007] Various unexpected results and advantages are obtained in exemplary embodiments of the disclosure. One such advantage of exemplary embodiments of the present disclosure is that defects in a barrier layer are sealed, providing a multilayer construction having better barrier characteristics than without the sealing layer.

[0008] The above summary of the present disclosure is not intended to describe each disclosed embodiment or every implementation of the present disclosure. The description that follows more