

ABSTRACT OF THE DISCLOSURE

OXYGEN CONTAINING PRECURSORS FOR PHOTOVOLTAIC PASSIVATION

5 Methods for depositing a passivation layer on a photovoltaic cell are disclosed. Methods include depositing a passivation layer comprising at least a bi-layer further comprising a silicon oxide and a silicon nitride layer. The silicon precursor(s) used for the deposition of the silicon oxide layer or the silicon nitride layer, respectively, is selected from the family of $\text{Si}(\text{OR}^1)_x\text{R}^2_y$, or from the family of SiR_xH_y , silane, and
10 combinations thereof; wherein $x+y = 4$, $y \neq 4$; R^1 is $\text{C}_1\text{-C}_8$ alkyl; R^2 is selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_8$ alkyl, and NR_3^* ; R is $\text{C}_1\text{-C}_8$ alkyl or NR_3^* ; wherein R^* can be hydrogen or $\text{C}_1\text{-C}_8$ alkyl; $\text{C}_1\text{-C}_8$ alkyl can be linear, branched or cyclic, the ligand can be saturated, unsaturated, or aromatic(for cyclic alkyl). Photovoltaic devices containing the passivation layers are also disclosed.

15

FIGURE 1