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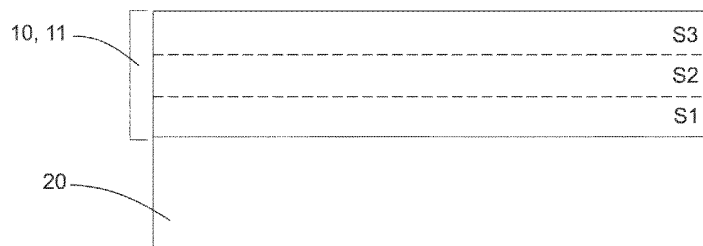


Figure 1

(57) Abstract: A method of producing coated substrates resistant to plasma corrosion and a related coating are provided. The method comprises depositing, over at least a portion of a substrate, an yttrium-containing plasma resistant coating through a process of chemical deposition in vapour phase, preferably, through Atomic Layer Deposition (ALD). In some configurations, the plasma resistant coating is formed with a mixture film composed of a mixture of an aluminium oxide compound and an yttrium oxide compound, for example. In some instances, a multilayer laminate structure comprising said mixture films alternating with deposition films composed of a metal fluoride compound is formed. A coated component for use in a plasma processing apparatus and a method for improving resistance of a substrate to plasma corrosion are further provided.

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