ORGANOMETALLIC COMPOUNDS AND PROCESSES FOR THE DEPOSITION OF HIGH PURITY TIN OXIDE AND DRY ETCHING OF THE TIN OXIDE FILMS AND DEPOSITION REACTORS

TECHNICAL FIELD

[0001] The present disclosure relates to organometallic compounds useful for the deposition of high purity tin oxide, and a dry etching process for dry etching such high purity tin oxide films and the deposition reactors used in tin oxide film deposition methods. More specifically, the present disclosure describes specific compounds useful in deposition of high purity tin oxide as well as compositions that result in better stability during storage of compounds useful in deposition of high purity tin oxide. Also, the present disclosure describes a process for dry etching tin oxide with a particular etchant gas and/or a process for dry etching a substrate using a particular etchant gas with a specific additive.

BACKGROUND

[0002] In the discussion of the background that follows, reference is made to certain structures and/or methods. However, the following references should not be construed as an admission that these structures and/or methods constitute prior art. Applicant expressly reserves the right to demonstrate that such structures and/or methods do not qualify as prior art.

[0003] The semiconductor industry is increasingly utilizing tin oxide conformal films during processing of electronic devices. Such films can be made using chemical vapor deposition (CVD) or atomic layer deposition (ALD).

[0004] To obtain the desired films, the reactant compounds used during the deposition process should be thermally stable whilst exhibiting good reactivity. Such properties