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(54) Title: HIGH PURITY ALKYL TIN COMPOUNDS AND MANUFACTURING METHODS THEREOF

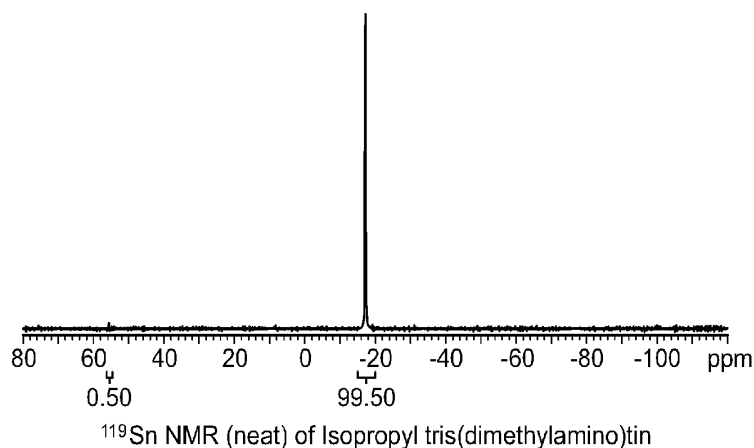


FIG. 7

(57) Abstract: Monoalkyl tin triamide compounds having purity of at least about 99 mol% and the chemical formula $\text{RSn}(\text{NMe}_2)_3$ are described. R^1 is selected from R^A , R^B and R^C ; R^A is a primary alkyl group having about 1 to 10 carbon atoms, R^B is a secondary alkyl group having about 3 to 10 carbon atoms, and R^C is a tertiary alkyl group having about 3 to 10 carbon atoms; each R^2 is independently an alkyl group having about 1 to 10 carbon atoms; and a content of $\text{R}^1\text{Sn}(\text{NR}^2)_2(\text{N}(\text{R}^2)\text{CH}_2\text{NR}^2)$ is less than about 1 mol%. Methods for synthesizing, purifying, and storing these compounds are also provided. The monoalkyl tin compounds may be used for the formation of high-resolution EUV lithography patterning precursors and are attractive due to their high purity and minimal concentration of dialkyl tin and other tin impurities.

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