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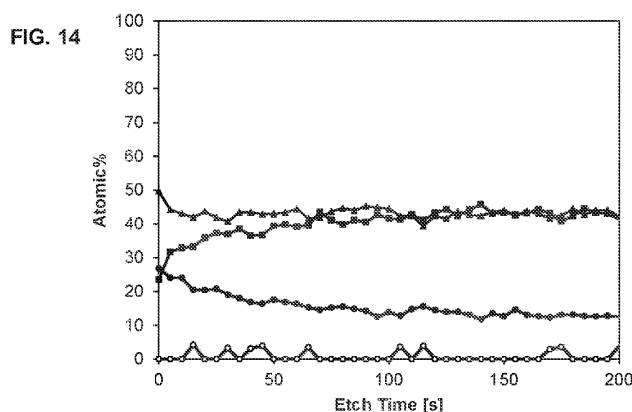
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(54) **Title:** STABLE BIS (ALKYL-ARENE) TRANSITION METAL COMPLEXES AND METHODS OF FILM DEPOSITION USING THE SAME



(57) **Abstract:** Disclosed Is a method for forming a metal-containing film on a substrate comprising the steps of: exposing the substrate to a vapor of a film forming composition that contains a metal-containing precursor; and depositing at least part of the metal-containing precursor onto the substrate to form the metal-containing film on the substrate through a vapor deposition process, wherein the metal-containing precursor is a pure  $M(\text{alkyl-arene})_2$ , wherein M is Cr, Mo, or W; arene is wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$  and  $R^6$  each is independently selected from H,  $C_1$ - $C_6$  alkyl,  $C_1$ - $C_6$  alkenyl,  $C_1$ - $C_6$  alkylphenyl,  $C_1$ - $C_6$  alkenylphenyl, or -SIXR7R8, wherein X is selected from F, Cl, Br, I, and R<sup>7</sup>, R<sup>8</sup> each are selected from H,  $C_1$ - $C_6$  alkyl,  $C_1$ - $C_6$  alkenyl.

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