



STRUCTURAL
CHEMISTRY

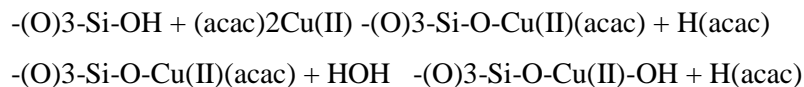
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Supporting information for article:

Effects of electron-donating ability of binding sites on coordination number: the interactions of a cyclic Schiff base with copper ions

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During the past 30 years, we have developed a strategy for fabricating model mixed metal oxide catalyst beginning with synthesizing a polynuclear metal complex showing a square planar structure (e.g., bis Cu(II) acetylacetonate). This metal complex is dissolved in an aprotic solvent such as acetonitrile. An amorphous metal oxide is selected from those having high surface areas (100 – 300 m²/g). For an initial study, we have used Cab-O-Sil™ as it is non-porous but still presents surface areas as high as 300 m²/g. Mononuclear and polynuclear metal complex having a square planar structure were shown to be quite successful in forming strong interaction with the surface of amorphous silica through the $[-(O)_3Si-OH]$ feature. In a suitable solvent such as acetonitrile, the metal complex will become attached through a strong interaction between the metal complex and the silica surface. One such surface reaction to affect this strong attachment is:



This is but one example illustrating the method for decorating a metal oxide surface such as silica with mononuclear or polynuclear metal complexes. More examples and the related foundation science have been described in the literature shown in the list of references.

References

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