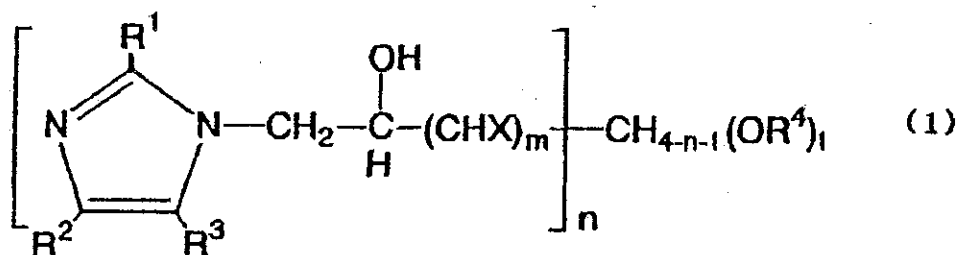


TIN AND TIN ALLOY ELECTROPLATING SOLUTIONS

ABSTRACT

It is an object of the invention to provide a tin electroplating and tin alloy electroplating having an improved solder wettability as well as a high reliability after soldering. Also, another object is to improve the plating rate and the appearance after plating. The tin and tin alloy electroplating solutions contain one or more imidazole alcohol compounds wherein the compounds are preferably those represented by general formula (1) below,

[Chemical Formula 1]



wherein in the general formula (1), R^1 , R^2 , R^3 each independently represent a hydrogen atom, a vinyl group or an alkyl group having 1 to 20 carbon atoms, and R^2 and R^3 may be joined together to form an aromatic ring; R^4 represents a hydrogen atom, a vinyl group, an alkyl group having 1 to 20 carbon atoms, a phenyl group, or $-(\text{CH}_2\text{CH}(\text{R}^5)\text{O})_k\text{H}$, with R^5 representing a hydrogen atom or an alkyl group having 1 to 20 carbon atoms and k representing an integer of from 1 to 20; X represents a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, or a substituent that may contain N, O; m represents an integer of from 0 to 20; and n and 1 represent an integer of from 1 to 3.

Figure no. 2 is suggested for publication