



## Gurer et al.

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- [57]
- ABSTRACT**

An apparatus for spin coating surfaces with liquid polymer comprises a spin coating chamber having a rotatable chuck for supporting an object to be coated. A distributor introduces gases into the chamber. A solvent vapor and carrier gas supply provides a carrier gas having a controlled level of solvent vapor therein within the range of from 0 to saturation concentrations of solvent vapor. A solvent vapor sensor is positioned with respect to the coating chamber to produce signals which correspond to the concentration of solvent vapor in the coating chamber. A control means is connected to the solvent vapor concentration sensor and to the solvent vapor and carrier gas supply means for controlling the level of solvent concentration in the carrier gas supplied by the solvent vapor and carrier gas supply means. The solvent vapor level can be obtained by controlled mixing of solvent-bearing and solvent-free gas streams, or by injection of solvent into a gas stream by means of an atomizer, for example. The solvent vapor concentration sensor includes a component positioned for exposure to solvent vapor and which has a property which changes as a function of the solvent vapor concentration to which it is exposed. A preferred sensor can include a membrane, the vibrational frequency of which changes as a function of the solvent vapor concentration to which it is exposed; a surface, an electrical property of which changes as a function of the solvent vapor concentration to which it is exposed; a sensor which detects an acoustical property which changes as a function of the solvent vapor concentration to which it is exposed; or an optical detector which detects an optical property which changes as a function of the solvent vapor concentration to which it is exposed.

- [21] Appl. No.: 08/987,179

- [22] Filed: **Dec. 8, 1997**

- [51] **Int. Cl.**<sup>7</sup> ..... **B05D 3/12**

- [52] U.S. Cl. .... 427/8; 427/240; 427/335;  
427/385.5; 118/52; 118/712; 118/713; 437/236

- [58] **Field of Search** ..... 427/8, 335, 240,  
427/385.5; 437/231; 118/52, 712, 713

- [56]
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**25 Claims, 3 Drawing Sheets**

