

Analysis of Metals, Organics, Cations and Anions in IPA

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Abstract

Wafer drying steps occur at the end of each wet clean process in semiconductor device manufacturing. These drying steps typically use isopropyl alcohol (IPA) as a medium to displace the water on the surface of the wafer and to subsequently dry the wafer via IPA evaporation. Drying processes using IPA, when all works well, are efficient and cost-effective leaving the wafer surface relatively free of watermarks, particles and contamination. The cleanliness of the IPA used for this purpose must be such that it does not contribute wafer level contamination that might create process problems or degrade wafer yields. In this paper, we briefly review the existing methods for IPA purity measurement and quality control and then we discuss the results obtained using a more comprehensive measurement capability that has recently become available. This new capability provides direct measurement of metallic, anionic, cationic and organic species that might be present in the IPA and are enabled by the mass spectrometry technology that has been incorporated in the Metara TCM (Trace Contamination Measurement) process metrology tool.