

VIBRATIONAL SIGNATURES OF POLYETHYLENE GLYCOL AND BRIGHTENERS ON COPPER

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With the use of fourier transform infrared spectroscopy (FTIR) and sum frequency generation spectroscopy (SFG), the surface coverage and confirmation of additives often used in copper deposition are identified on copper surfaces. Ex situ experiments at open circuit and during deposition show an increase in the adsorption of brighteners such as 3- mercapto-1-propanesulfonic acid (MPSA) and bis-(3-sulfopropyl)-disulfide (SPS) with time. With an increase in the surface coverage of these species, a decrease in the surface coverage of PEG is noted. The trends in surface coverage and adsorption of these species have been shown for both sulfate- and perchlorate-based electrolytes. The differences in the kinetics between the adsorption of MPSA and SPS will be discussed.