Technical Note

DRY FILM PHOTORESIST: ADHESION

INTRODUCTION

This Technical Note will focus on dry film photoresist adhesion principles and standard adhesion methodologies. Critical parameters of strong adhesion are equipment and environmental cleanliness, proper substrate preparation, and dry film processing.

CRITICAL DETAILS OF ADHESION

EQUIPMENT	• Laminator - ensure rolls are free of debris • Dispense equipment for 412-17 silane primer or other cleaning solvents for the substrate. • Surface treatment tools (Plasma, Corona, etc)
MATERIALS	• Nagase ChemteX Dry Film Photoresist • Cyclohexanone/Developer (See Nagase ChemteX Developer Tech Note) • IPA, H2O • Substrate
GENERAL ENVIRONMENTAL ADHESION CONSIDERATIONS	• Cleanroom is preferred. Particles and general contaminants impact adhesion. Ensure the area is as clean as possible through all processing. • Avoid utilizing basic pH chemistries that could interfere with the epoxy-cationic cure mechanism. This goes for local environment and atmospheric conditions. • Substrate Handling should be done in a manner that avoids contamination (general handling, high purity solvents, precleaned substrates, etc).
NAGASE CHEMTEX DRY FILM SPECIFIC ADHESION CONSIDERATIONS	• Good lamination is critical to adhesion. Ensure sufficient temperature and pressure. (See Nagase ChemteX Lamination Tech Note) • Plasma prior to lamination ensures a clean substrate. • 02 plasma is typically sufficient for initial substrate preparation. The use of an additional forming gas may be necessary depending on the substrate- in particular gold or glass. • Adhesion loss following the develop step may appear as darker regions. These regions could be due to solvent ingress or swelling of the resist. Adhesion loss could be a result of the Exposure or PEB time/temperature being too low. • Adhesion loss during long term reliability testing could be a result of insufficient substrate preparation, hard bake, or the need for a primer. • Surface preparation is substrate dependent. • Increase the hard bake temperature to improve long term reliability. • Utilize 412-17 silane primer.