



1. Title:	The Development of EUV Resists Based on Non-polymeric Macromolecules with Polyphenol Derivatives
2. Full names of all authors:	Masatoshi Echigo, Dai Oguro , Takeo Watanabe, Hiroo Kinoshita , Yukiko Kikuchi , Iwao Nishiyama

### 3. Abstract body:

We developed the novel EUV resists based on non-polymeric macromolecules with polyphenol derivatives, tris[bis(alkylhydroxyphenyl) alkyl] benzene (TPB) derivative and bis[bis(alkylhydroxyphenyl) alkyl] naphthalene (BPN) derivative, with high glass transition temperature and amorphous form. We evaluated the resists based on TPB derivative and BPN derivative which can operate as both positive-tone resists and negative-tone resists. The evaluation of sensitivity, outgassing from its resist films was carried out at the NewSUBARU synchrotron radiation facility in Hyogo Prefecture, Japan. The resists based on TPB derivative and BPN derivative showed high E0 sensitivity and the very small amount of outgassing from its resist films by EUV irradiation. Furthermore, the evaluation of resolution and line edge roughness were carried out at ASET EUV process technology research lab. in Kanagawa Prefecture, Japan. The resists based on TPB derivative and BPN derivative showed excellent resist pattern with high sensitivity, high resolution and low line edge roughness under EUV exposure. We confirmed the resists based on non-polymeric macromolecules with polyphenol derivatives, with TPB derivative and with BPN derivative had the good exposure performance for EUV Resists.