

Protocol for using Riston 130 Photoresist

The Riston resists are a line of negative film resists that offer excellent adhesion to metals and have low internal stress (good for electroplating on steel). They are stable in acidic conditions and dissolve and develop in basic solutions. According to the company, resolution is limited by an aspect ratio of 1, so 75 um thick resists should give 75 um resolution.

1. Preheat laminator to 115-130 °C.
2. Turn on UV lamp of the aligner.
3. Cut off sheet of resist from roll.
4. Prepare steel wafer(s) by removing protective cover and washing with acetone, IPA, water, drying with nitrogen.
5. Peel off part of thicker clear protective film (whitish) from resist and stick resist on wafer. But leave the transparent on top for lamination.
6. Feed wafer into laminator after peeling off remaining protective sheet but holding up the resist, letting the rollers compress it onto the wafer. Use a piece of wipe to protect the rolls to be cover by excesses of resin.
7. Cut off excess resist.
8. Peel off top protective sheet (very thin and clear). It should come off easily after cutting the excess resist.
9. Place mask on the aligner
10. Expose for 2.5 (1Layer), 3s (2L), 4s (4L) and 5.5s (5L) aprox.
11. Develop in 1% w/v potassium carbonate, agitating continually to remove unexposed resist. Stop only when steel is visible. If a layer of resist is visible after drying, place back into developer or in 3% KOH solution (briefly!). Spraying wafer or other mechanical agitation helps remove resist better than soaking.
12. Dry wafer and proceed to nickel electroplating. First do a short nickel strike (~0.5 A for 20 s or so).
13. Following desired electroplating and potential sanding/polishing, strip resist by immersing in 3% w/v KOH solution.