

SAL 601 spinning in SSE Spinner Maximus.

Existing flow: 4inch_SAL601_3000rpm_85C60s with following setting in coating and baking recipe:

Coating recipe: SAL601_2000rpm

Dispense:

Dispense on the rotating wafer 1,5ml with dispense speed 10steps/s with dispense step 8s. Rotation speed 150rpm with acceleration 200rpm/s.

Spin off:

2000rpm with acceleration 400rpm/s for 60s

Baking recipe: 90C120s

1mm proximity bake on hot plate 1, 90C, tolerance 3C for 120s.

The first test wafer was run with SAL- 601 diluted with PGMEA 1:2. The small particles defects, but no thickness deviation across the wafer was observed. The thickness measurements performed with Filmtek, recipe pxszep520 in 9 points, average thickness across the wafer was 162nm with standard deviation 0,64nm.

The second test wafer spun with SAL- 601 diluted with PGMEA 1:0, 5. The thickness variation across the wafer was seen clearly in the white light. The measurements results can be read down.

X (mm)	Y (mm)	Thickness (nm)
0	0	452.10
20.00	0	449.73
-7.66E-015	-20.00	446.59
-20.00	1.53E-014	448.40
1.41E-014	20.00	449.50
40.00	0	448.22
-1.53E-014	-40.00	446.24
-40.00	3.06E-014	445.77
2.82E-014	40.00	450.75

Average thickness 448nm, standard deviation 2, 14 nm.

The following changes were made in the dispense step to improve the thickness uniformity:

Dispense:

Spinning during the dispense step was increased up to 1000rpm with acceleration 10000rpm/s, dispense time decreased to 4 seconds. The dispense volume and speed were not changed.

Few particles damages, but no thickness variations were observed after the changes were implemented in the flow. Measurements:

X (mm)	Y (mm)	Thickness (nm)
0	0	474.89
20.00	0	475.74
-7.66E-015	-20.00	474.46
-20.00	1.53E-014	474.87
1.41E-014	20.00	475.69
40.00	0	472.89
-1.53E-014	-40.00	472.98
-40.00	3.06E-014	473.65
2.82E-014	40.00	475.14

Average thickness 475nm, standard deviation 1nm.