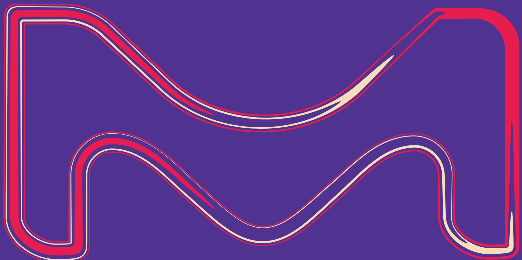
AZ® 10XT (520 cP) photoresist performance

Comparison to AZ® 9260



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Overview

AZ® 10XT (520 cP) photoresist was tested side by side vs. AZ® 9260 at a film thickness of 12.0 µm.

The two products were compared for coat uniformity, thermal stability, and lithographic performance on silicon as follows.

AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Process Conditions:

Optitrac Coat/ Bake
Coat: Static dispense
Substrate: 150mm HMDS primed silicon
Target Film Thickness: 12.0 µm
Spin Speed: 1370 rpm for 30 sec
Softbake: 110°C hotplate/ 180 sec contact
Exposure: Ultratech 1500 gh line stepper, increment 125 mJ/cm^2

Develop: AZ® 400K 1:4, 260 sec continuous spray @ 27°C

Analysis:

Hitachi S4700 SEM

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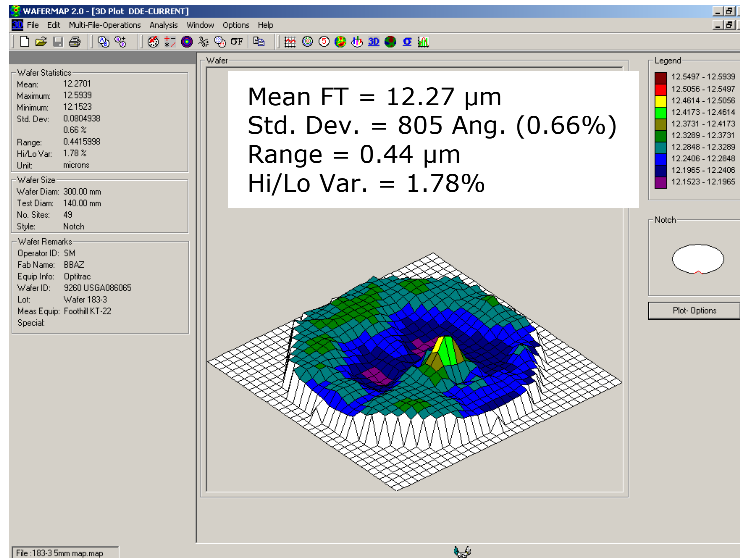
AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

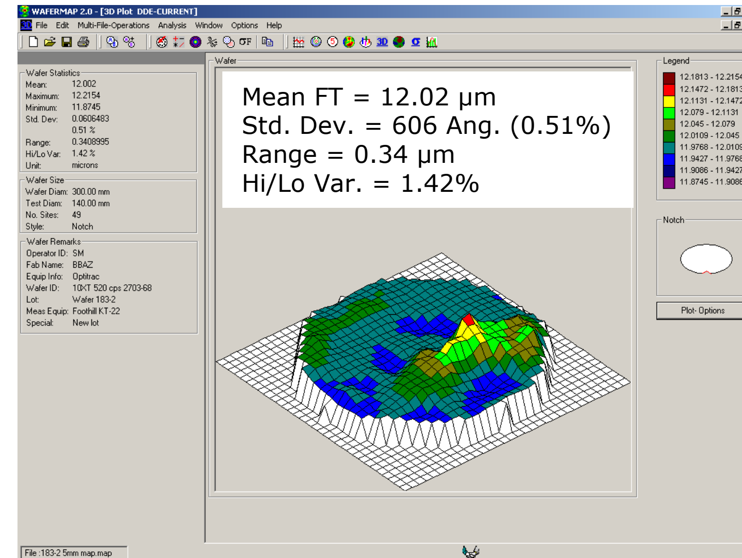
Target 12.0 µm FT on 150 mm Silicon by Hand Dispense

5 mm Edge Exclusion Map

AZ® 9260
Spin 30 sec @ 1370 rpm



AZ® 10XT
Spin 30 sec @ 1370 rpm



No difference in coat uniformity between the two products

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AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Performance Summary on Silicon at 12.0 µm Film Thickness

Product	Features (1:1)	Film Thickness (µm)	DTP 10.0 µm (mJ/cm²)	Exposure Latitude 10.0 µm (%)	DOF 10.0 µm (µm)	Linearity (µm)
AZ® 9260	Dense Lines	12.0	1257	134	18.0	1.8
AZ® 10XT	Dense Lines	12.0	1283	108	18.0	1.8

Comparable lithographic performance between the two products

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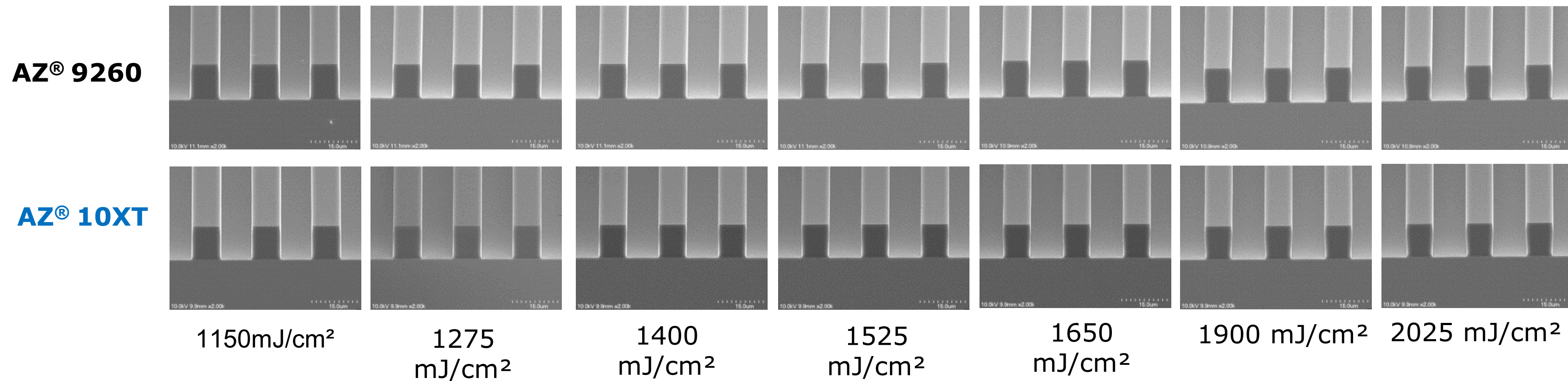
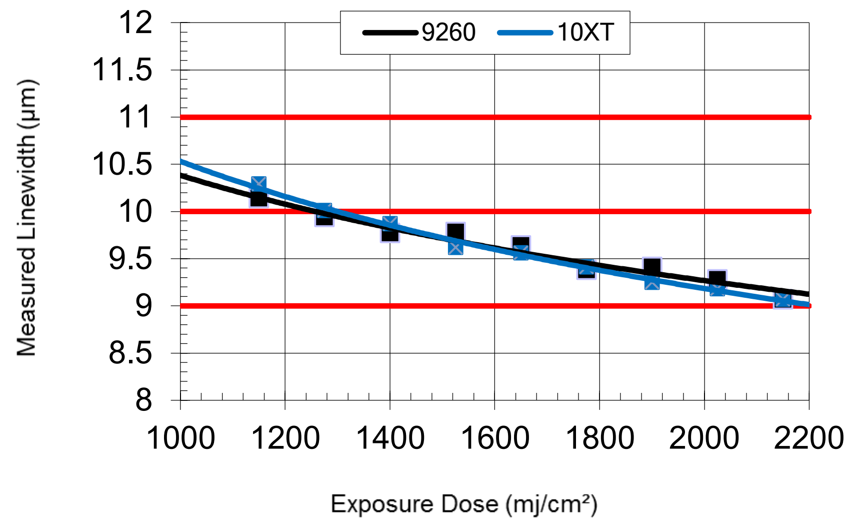
AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Exposure Latitude on Silicon; FT=12.0 µm; 10.0 µm L/S



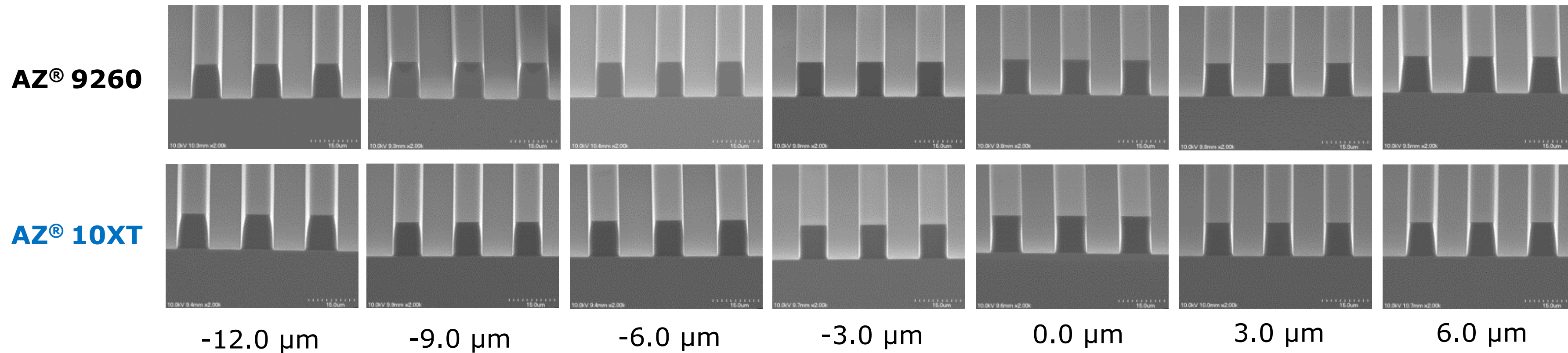


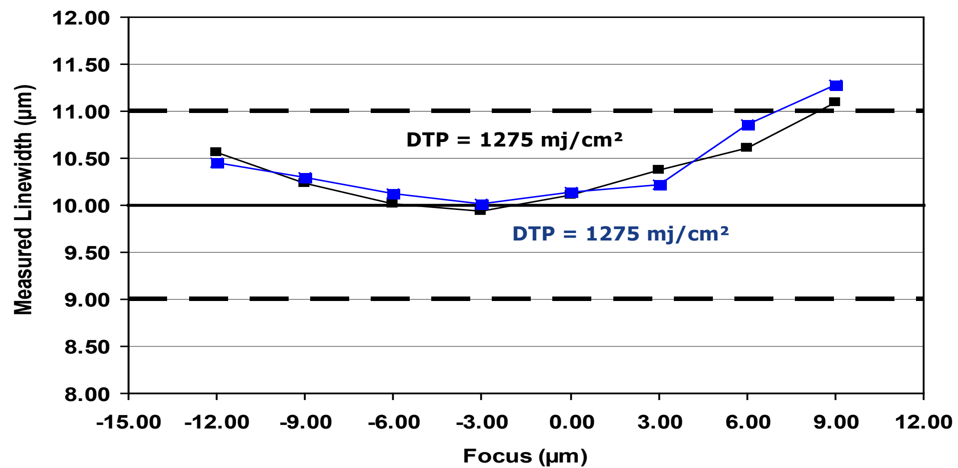
Film Thickness: 12.0 µm
Optitrac coater
SB: 110°C/ 180 sec contact
Ultratech 1500 g-h Line Stepper
AZ®400K 1:4, 260 sec continuous spray @ 27 °C

S4M14G14

AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Depth of Focus on Silicon; FT=12.0 µm; 10.0 µm L/S





Film Thickness: 12.0 µm
Optitrac coater
SB: 110°C/ 180 sec contact
Ultratech 1500 g-h Line Stepper
AZ®400K 1:4, 260 sec continuous spray @ 27 °C

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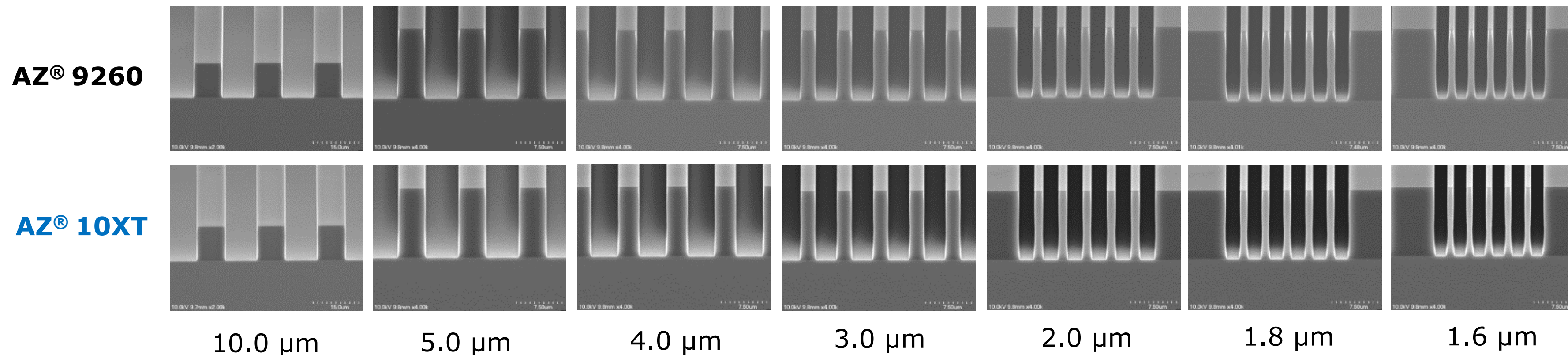
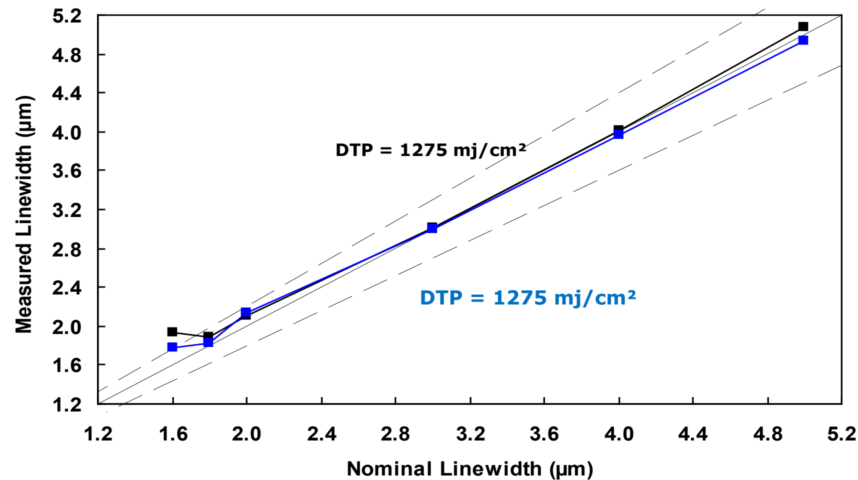
AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Linearity on Silicon; FT=12.0 µm; F= -3.0 µm; L/S





Film Thickness: 12.0 µm
Optitrac coater
SB: 110°C/ 180 sec contact
Ultratech 1500 g-h Line Stepper
AZ®400K 1:4, 260 sec continuous spray @ 27 °C

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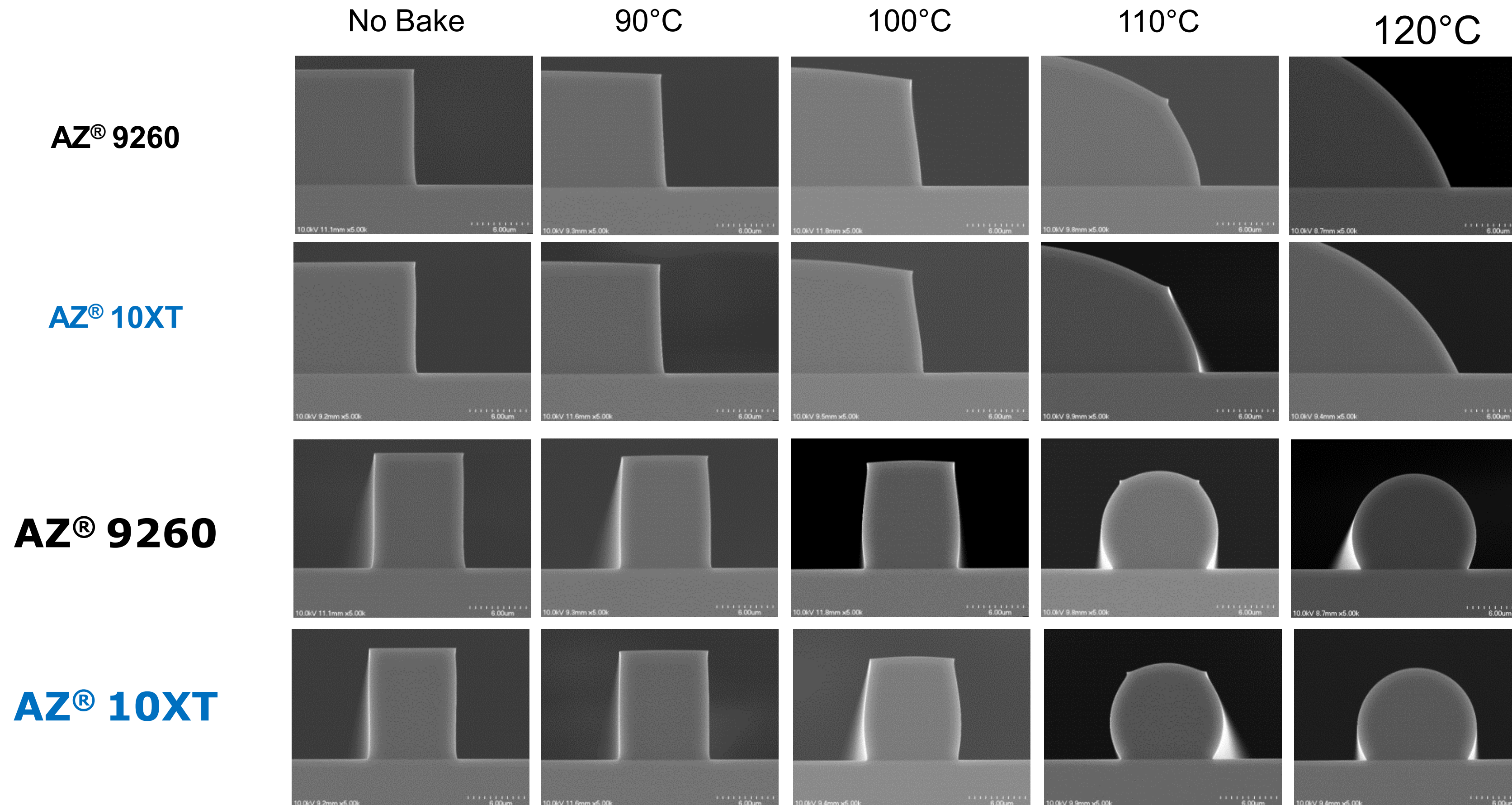
AZ® 10XT (520 cP) vs. AZ® 9260 Photoresist

Thermal Stability on Si for Large Pads and 10.0 µm Lines



Film Thickness: 12.0 µm
Optitrac coater
SB: 110°C/ 180 sec contact
Ultratech 1500 g-h Line Stepper
AZ®400K 1:4, 260 sec continuous spray @ 27 °C

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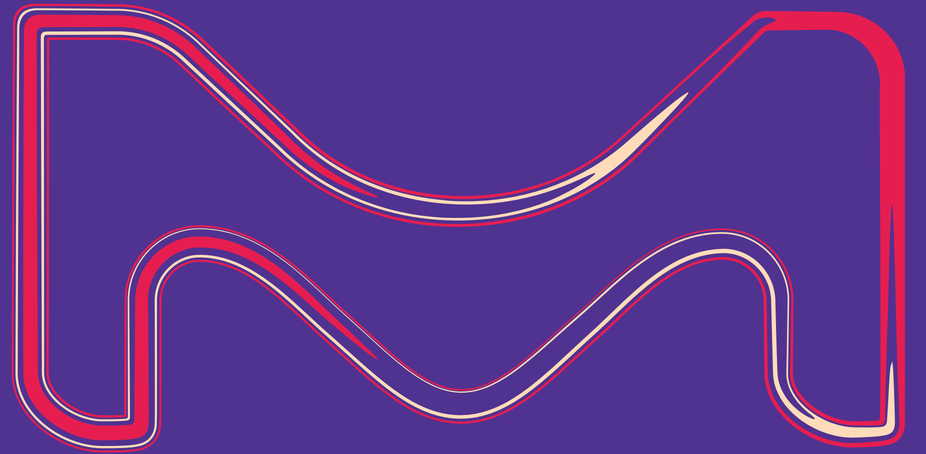
Summary

AZ® 10XT showed no difference in coat uniformity or thermal stability compared to AZ® 9260.

Lithographic performance for these two products was virtually identical.



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