AZ® P4620 Photoresist Data Package

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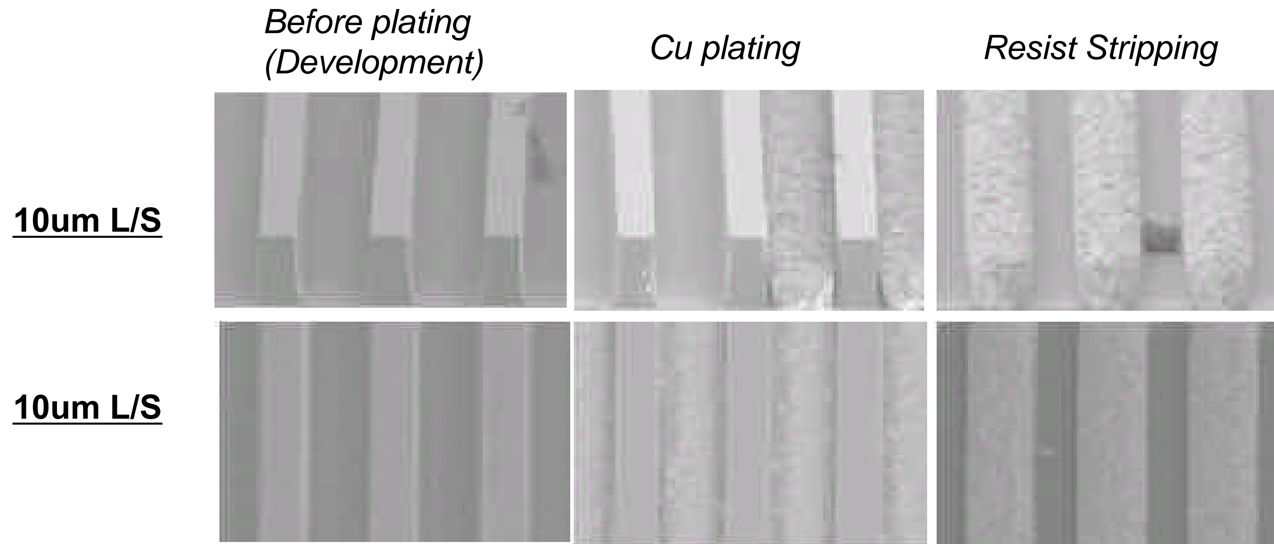
AZ P4620 Copper plating



Plating process condition

Photoresist thickness: **15um**, Prebake: 110C/180 sec. (Hotplate)
Exposure: PLA-501F（Soft contact, ghi-line aligner)
Development: AZ 400K 1:4, Immersion for 300 sec., 23 C
Plating liquid: MICROFAB Cu200 (EEJA)
Plating height: 7.0um, Plating: 25 C / 30 min.

AZ® P4620 Gold Plating Process

FT:	28um, Single Coat
Softbake:	1) 100ºC / 500 sec. (Hotplate)
	2) 90ºC / 180 min. (Oven)
Rehydration time:	60 minutes
Exposure:	UTS-SS-III (ghi-line)
Develop:	AZ 400K 1:3, 21.5ºC
Plating:	Cyanide Gold Plating Solution

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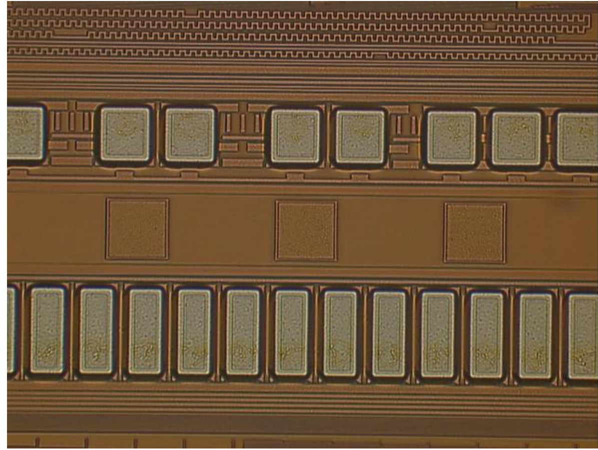
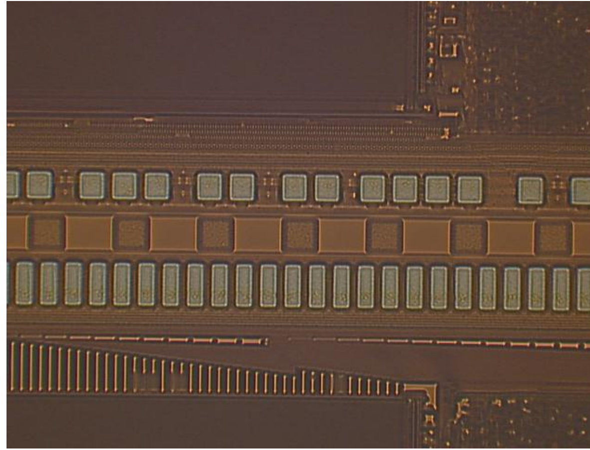
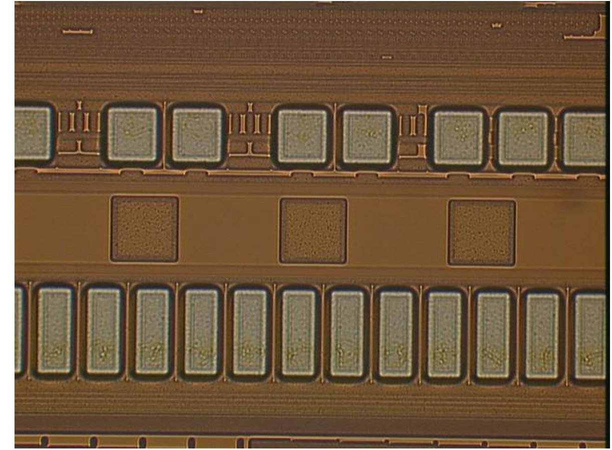
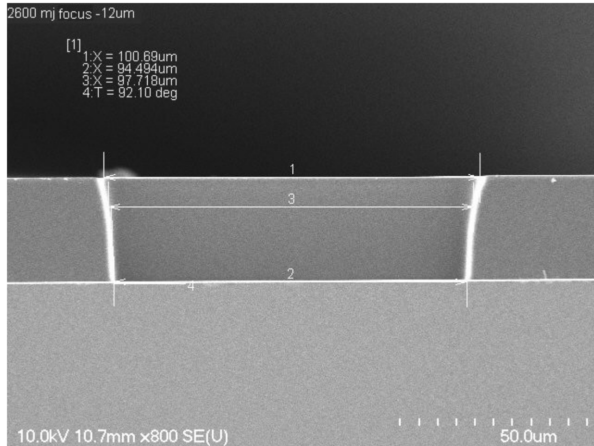
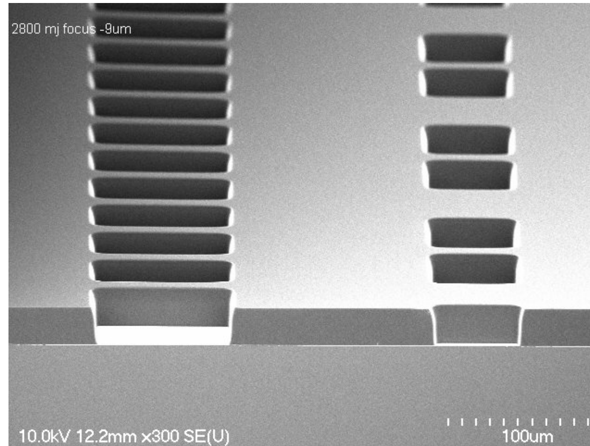
AZ® P4620 Gold Plating Process

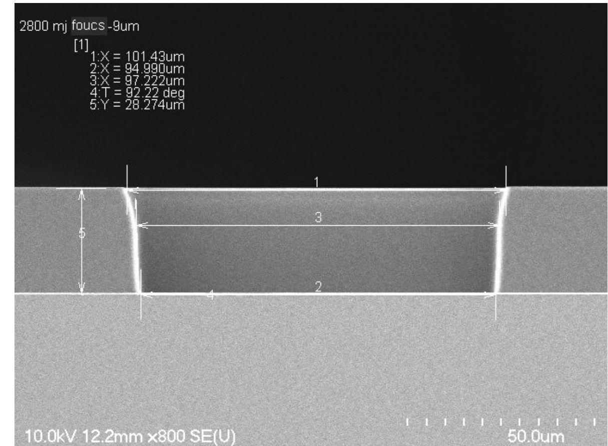












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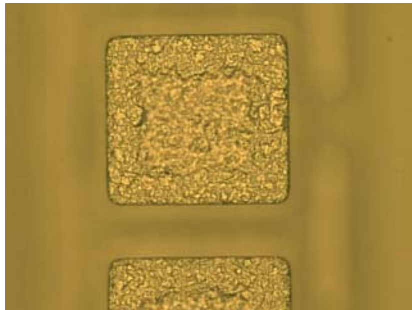
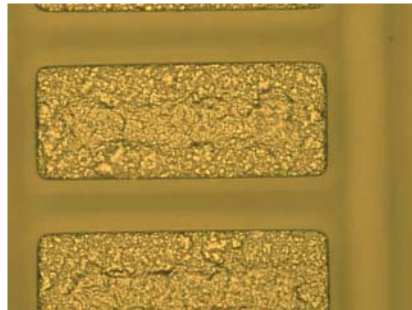
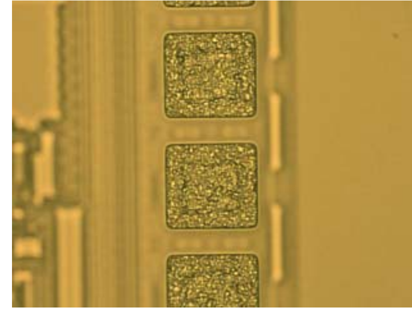
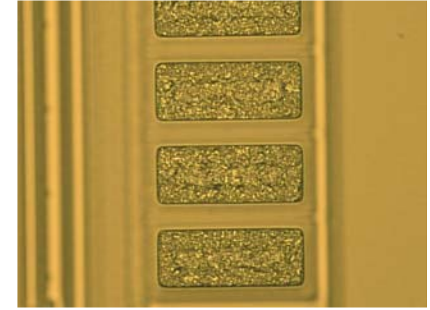
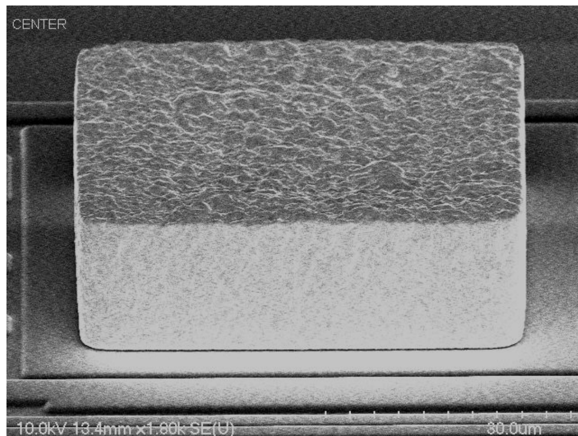
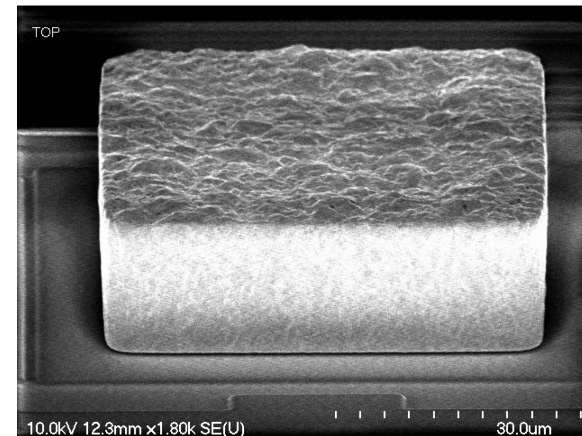
AZ® P4620 Gold Plating Process

Photoresist Mask CD = 93.5um;   Au Bump CD = 96um.





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AZ P4620 Lithography performance

Process Conditions:

Optitrac Coat/ Bake
Coat: Static dispense on Silicon
Target Film Thickness: **12 µm**
Softbake: 110C hotplate/ 80 sec. full contact
Exposure: Ultratech 1500 gh line Stepper
Develop: AZ® 300 MIF, continuous spray for 200 sec. @ 23 C

Analysis:

Amray SEM

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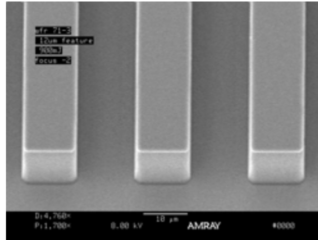
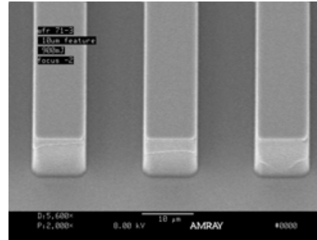
AZ P4620 Lithography performance

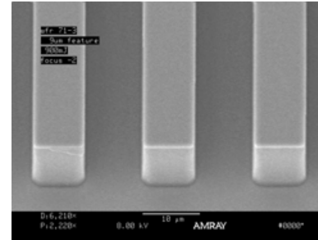
12 µm



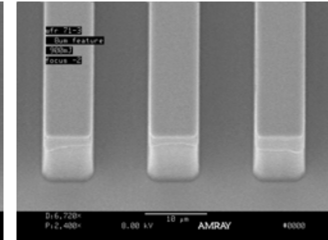
10 µm



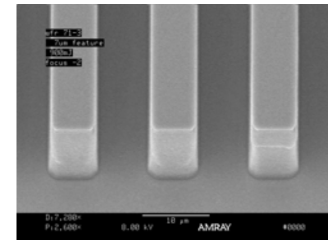
9.0 µm



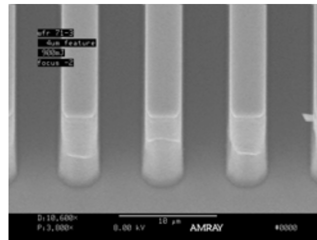
8.0 µm



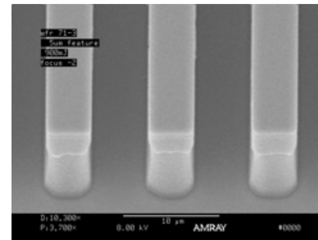
7.0 µm



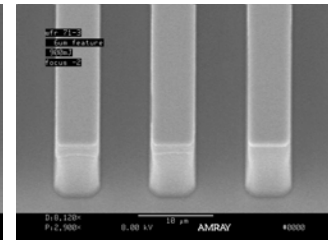
Film Thickness: **12 µm**
Optitrac coat and Bake
SB: 110 C / 80 sec
Ultratech 1500 gh line Stepper
AZ 300 MIF, 200 sec continuous spray @ 23 C



4.0 µm



5.0 µm



6.0 µm

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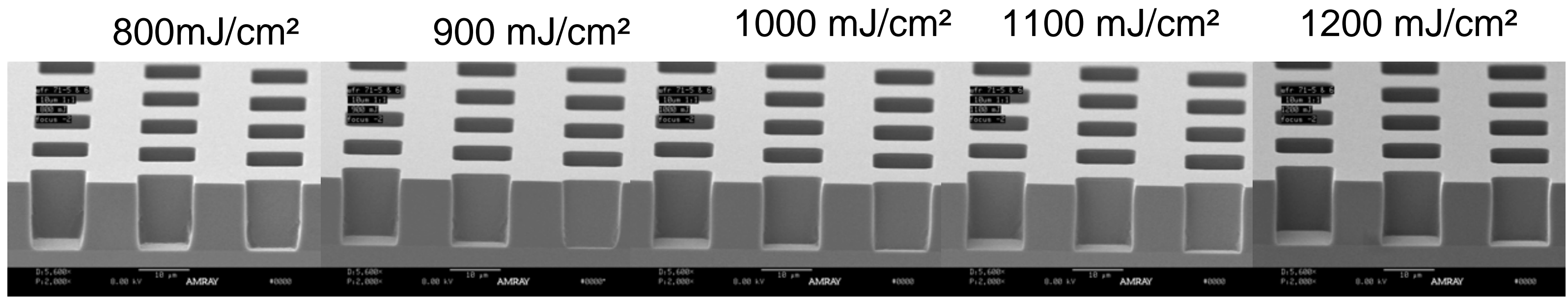
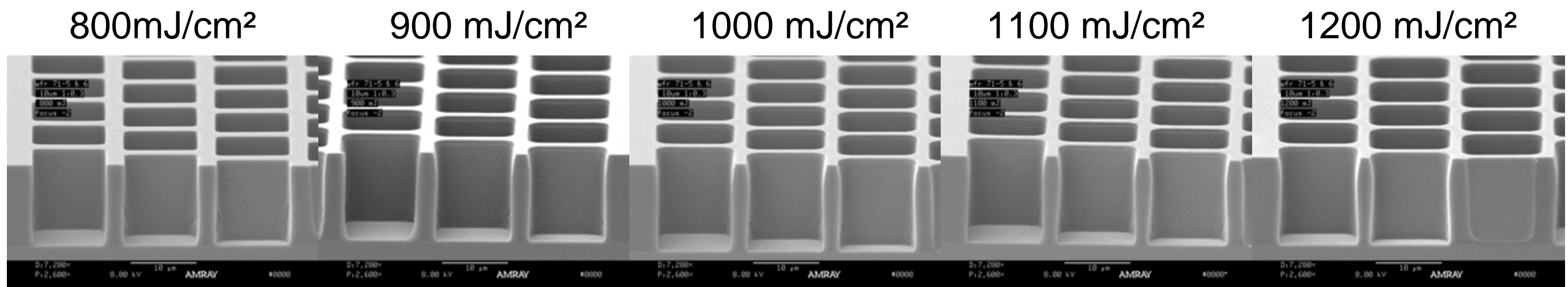
AZ P4620 Lithography performance



10.0 µm Contact Holes 1:1 Pitch



10.0 µm Contact Holes 1:0.3 Pitch

Film Thickness: 12 µm
Optitrac coat and Bake
SB: 110 C / 80 sec
Ultratech 1500 gh line Stepper
AZ 300 MIF, 200 sec continuous spray @ 23 C

AZ Electronic Materials®

AZ P4620 Lithography performance

Process Conditions:

Optitrac Coat/ Bake

Coat: Static dispense on Silicon

Target Film Thickness: **24 µm**

Softbake: 1st layer 110 C hotplate/ 80 sec. full contact

2nd layer 115 C hotplate/ 180 sec. full contact

Exposure: Ultratech 1500 gh line Stepper

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

Analysis:

Amray SEM

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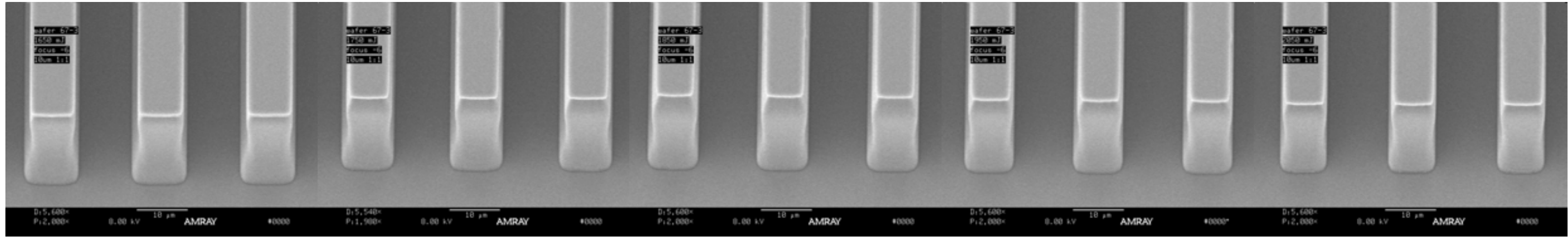
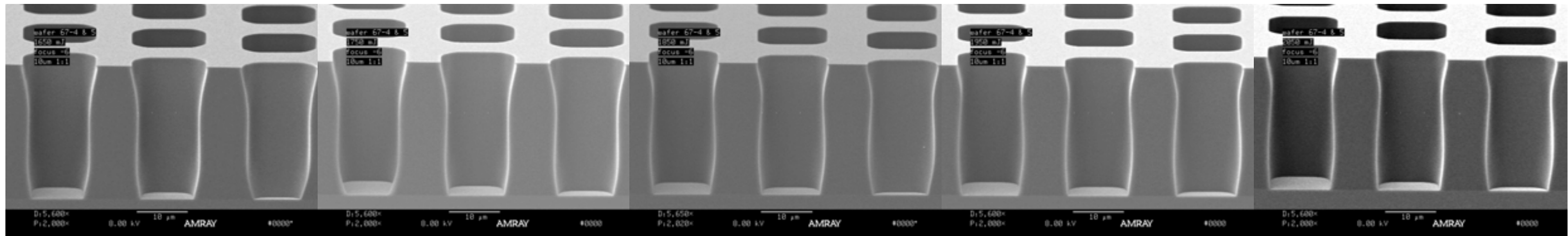
AZ P4620 Lithography performance

1650 mJ/cm² 1750 mJ/cm² 1850 mJ/cm² 1950 mJ/cm² 2050 mJ/cm²



1650 mJ/cm² 1750 mJ/cm² 1850 mJ/cm² 1950 mJ/cm² 2050 mJ/cm²



Film Thickness: **24 µm**
Optitrac coat and Bake
SB: 1st layer 110 C / 80 sec
2nd layer 115 C /180 sec
Ultratech 1500 gh line Stepper
AZ 400K 1:4, 260 sec continuous spray @ 27 C

AZ® P4620 Lithographic Performance Summary

Process Conditions

Substrate :	Bare-Si
Film-thickness :	17µm
Softbake :	120°C / 240 sec. (DHP)
Exposure :	Canon PLA-501F (ghi-line)
Dose :	630 mJ/cm^2
Development :	AZ 400K Developer 1:4, Immersion - 300 sec., 23°C

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AZ® P4000 Bleached Absorbance Curve

AZ P4000 Series resist(s)
Ellipsometrc Absorbance
Normalized to 1/µm

'k' ellipsometric: P4000

Absorbance ('k')

5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00

175 200 225 250 275 300 325 350 375 400 425 450 475 500

Wavelength (nm)

AZ® P4000 Unbleached Absorbance Curve

AZ P4000 Series resist(s)
Ellipsometrc Absorbance
Normalized to 1/µm

'k' ellipsometric: P4000

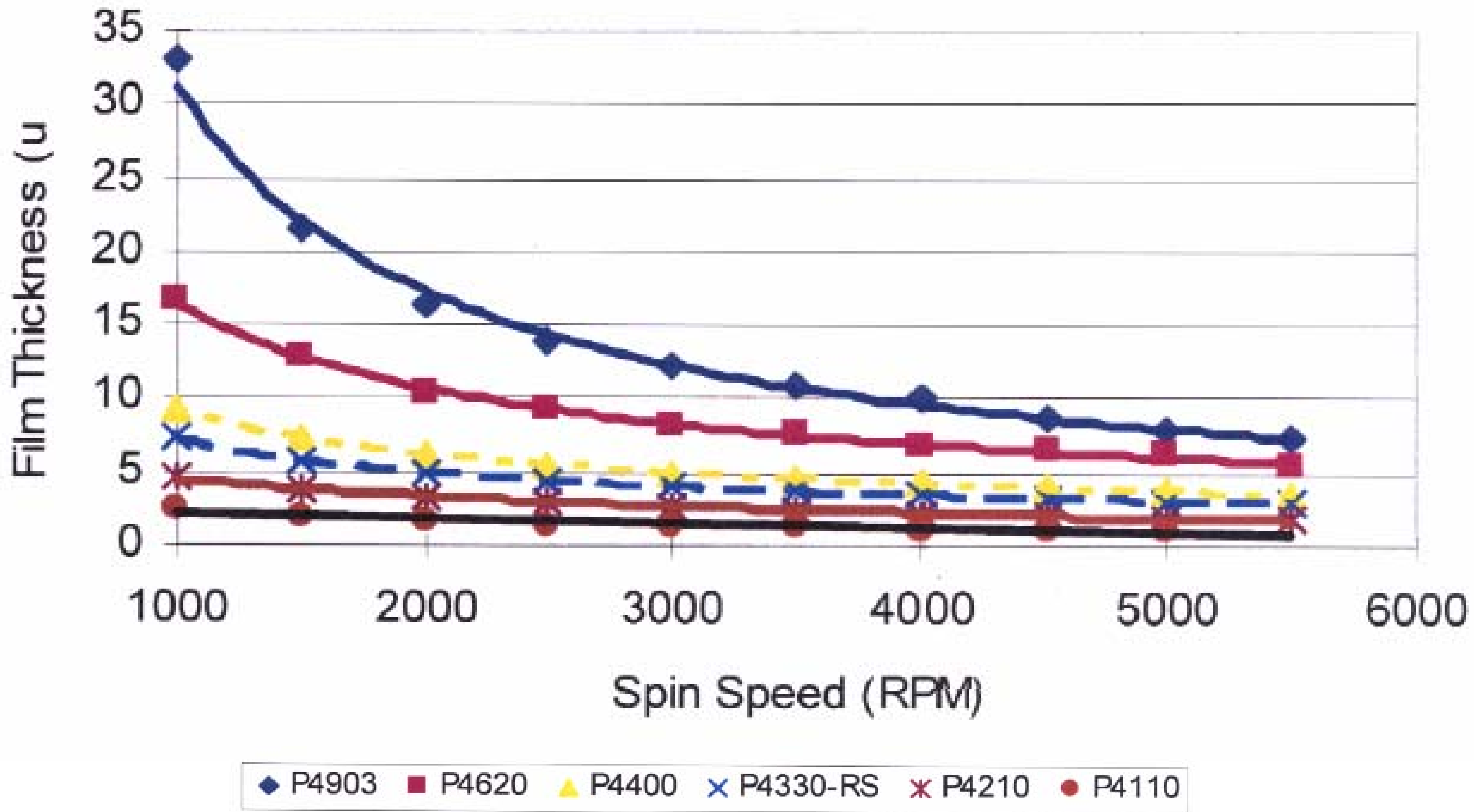
Absorbance ('k')

3.00
2.50
2.00
1.50
1.00
0.50
0.00

175 200 225 250 275 300 325 350 375 400 425 450 475 500

Wavelength (nm)

AZ® P4000 Series Spin Speed Curve



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