MATECH

WaveEtch™ wet processing performance

MATECH's breakthrough system offers automated wet processing with unparalleled process uniformity!

Matech™ is proud to announce the latest addition to its family of single sided wet processors: the WaveEtch™. The system is specifically designed to address a wide range of etching and thinning processes. Using its patented technology, the WaveEtch™ easily etches patterns or thins films on wafers without any contamination of the back side, thus becoming the ultimate choice in high performance single sided wet processing applications. For blanket film thinning the system is capable of outstanding uniformity that is unparalleled in the field.

Typical process data show that the WaveEtch™ successfully thins difficult films, such as silicon oxide, with a process uniformity standard deviation as low as 1 %! Figure 1 shows a surface topographic map that illustrates the high degree of uniformity that can be achieved while thinning oxide films with a WaveEtch™ system. See table below for a summary of system performance.

Oxide Film Statistical Analysis

MEAN	4461	Angstroms
STDEV	26	Angstroms
MAX	4509	Angstroms
MIN	4425	Angstroms
RANGE	84	Angstroms

Thickness of SiO_2 Film on 75mm Wafer

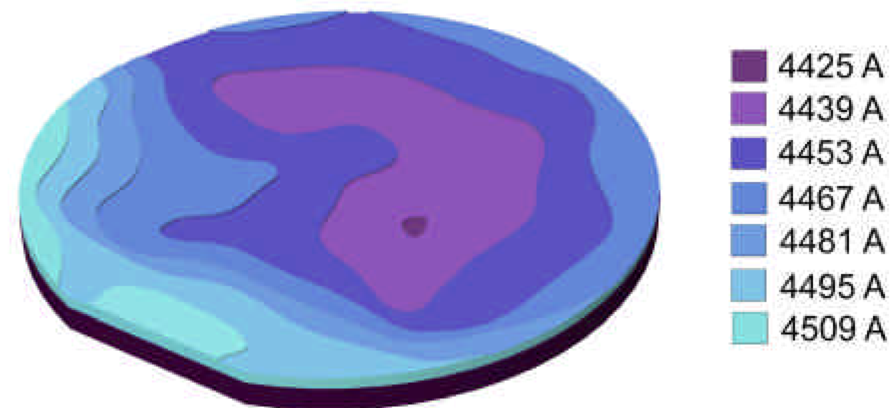
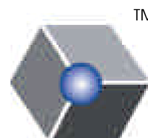


Figure 1



Materials and Technologies Corp. 641 Sheafe Road, Poughkeepsie, NY 12601 845.463.2799 Fax: 845.463.2786 info@matech.com www.matech.com

Further analysis of film uniformity shows that the WaveEtch™ thin film thinning technology often exceeds that of typical deposition equipment. In the field, the system yields very high uniformity films and patterns with standard deviations down to 1 % or less. This effect can be observed in Figure 2, which displays 81 measured thickness points before and after oxide etch.

The post-etch line illustrates the above and also shows a secondary planarizing effect on the oxide layer, resulting in a film with improved uniformity. In addition, when processing SiN or other less demanding films, the WaveEtch™ is capable of uniformities with a standard deviations as low as 0.75%.

The WaveEtch™ is a fully automated, cassette-to-cassette, dry-in dry-out system with a 75 wafer capacity. It can consistently achieve excellent wafer-to-wafer pattern etching or film thinning quality and uniformity on a large scale with minimal user interaction. Wafer-to-wafer batch data show that the WaveEtch™ thinning technology provides repeatable high quality processing. The system averages approximately 2% standard deviation of etched depth over the area of each wafer, and maintains less than 5% standard deviation of target etch depth from wafer-to-wafer, when processing SiO_2 films. See the summary data table to the right.

In conclusion, for your most demanding etching and thinning applications contact Materials and Technologies today for a discussion of your process needs and an introduction to the WaveEtch™ systems.

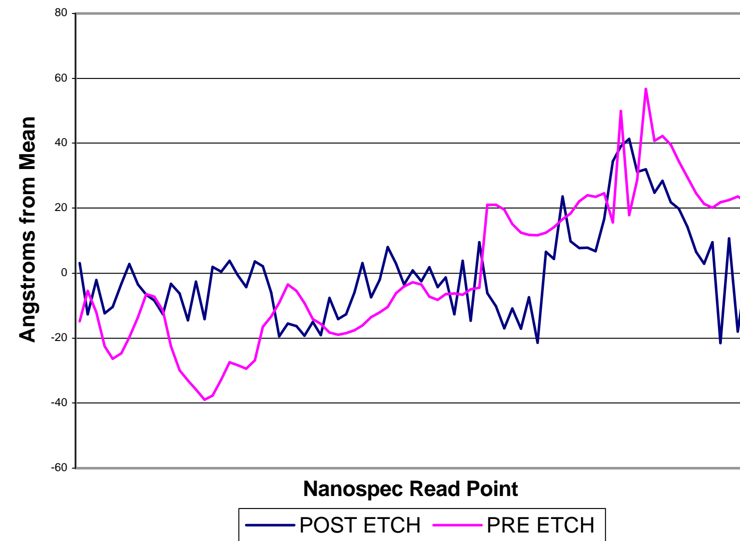


Figure 2

Process Statistical Analysis
Of etched distance

AVG.MEAN	1183	Angstroms
AVG. STDEV	25	Angstroms
AVG. MAX	1232	Angstroms
AVG.MIN	1138	Angstroms
AVG. RANGE	94	Angstroms

Materials and Technologies Corp. 641 Sheafe Road, Poughkeepsie, NY 12601 845.463.2799 Fax: 845.463.2786 info@matech.com www.matech.com