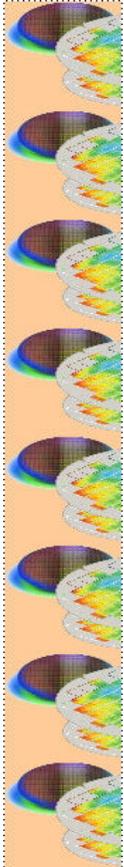


TEA Systems news - New product release for control of Reticle Haze

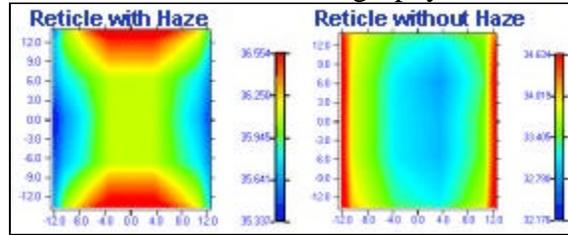
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Control of DUV Reticle Haze and Lens Contamination
 TEA Systems Announces the release of a new, precise and cost effective Weir PW capability for yield control in sub-65 nm node lithography

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Detailed: [Reticle Haze Monitor](#)
Technical discussion: [Reticle Haze Models](#)



Allentown, PA (USA). March 30, 2007 -- A new, rapid and highly cost effective capability for early detection and control of production problems caused by reticle-haze formation has been introduced by TEA Systems Corporation. This release marks the completion of development for the industry's first toolset to employ metrology and advance Process Behavioral Models™ for the prevention of production yield loss due to the gradual build-up of chemically-deposited haze on the reticle or final lens of the scanner in Deep Ultra-Violet (DUV) exposure environments.

The **Weir PW Reticle Haze monitor** detects image degradation in the earliest phases of contamination. A Reticle Haze inspection is performed on a test wafer that has been measured by offline or in-situ OCD or CD-SEM metrology. Inspection and analysis are performed in one-tenth of the time required by alternate direct reticle inspection methods that employ hardware costing over \$1 million dollars. The new technique requires only the use of a focus-dose exposure matrix of the product reticle, a metrology tool and Weir PW software. The same data can be simultaneously used to calculate and monitor process window settings thereby saving additional time and money.

Terrence Zavec, president of TEA Systems commented, "Reticle haze on DUV process tools is rising in significance as a serious source of yield and capacity loss in sub-65 nanometer device manufacturing. Reticle front or back-side haze causes non-uniform transmission loss across the reticle that is typically first observed as a gradual shift in exposure-dose. Unseen by most methods, the influence of haze growth increasingly degrades feature profiles and process stability resulting in both production yield and capacity loss.

A similar production problem is encountered with the onset of film depositions on the final lens of the exposure tool. Lens-film deposition is created by photoresist or other chemical radical dissolution during latent image formation that results in a subsequent deposition of vapor-phase polymers on the lens-surface.

The Weir PW Reticle-haze option provides the earliest detection of haze using a highly cost effective and precise method that only requires already existing Critical Dimension (CD) metrology hardware."

With the onset of reticle-haze, device yields are lowered because haze growth is gradual, continuous with use and directly influences feature-size distributions in a non-uniform manner. As a results features are produced at the wrong size and with increasing variation as the area of the process window gradually degrades. Since the reticle is an intimate component of the scanner's optical system, the effective image aberrations are strongly influenced by haze resulting in additional degradation of the feature-profile uniformity and a direct loss of production yield and capacity.

Unlike costly hardware-based reticle inspection tools that directly view the reticle and require over 3 hours time, Weir PW employs a model-based process behavioral search for the onset of haze that is performed in less than 20 minutes exposure and metrology time. The Weir PW technique is more exact than die-to-database comparisons because the analysis is conducted using the derivation of effective dose

uniformity and across-process feature profile perturbations that are the fundamental result of the haze formation. Dose nonuniformity, and the resulting increase in full-exposure feature profile variation, is the most critical lithographic process limiting factor to impact device yield and wafer-fab capacity.

Availability and Pricing

Weir PW Reticle-Haze Monitor is available effective April 15th. The option is integrated into the TEA Systems Weir PW Lithographer's Workbench and the Weir DMA automation suites. Weir PW products run on windows-based computers using Windows XP, Windows 2000 or Small Business Server 2003. For more information or to order Weir PW, contact sales@TEAsystems.com.

About TEA Systems

TEA Systems, a privately held corporation since 1988, specializes in advanced, intelligent and adaptive process modeling of the photomask, semiconductor process and its toolsets. Products from TEA allow the user to decouple process, tool and random perturbations to enhance process setup, control and yield.

TEA Systems products include:

Weir PSFM: Full-wafer/field/scan analysis tool for FOCUS derived from proprietary defocus sensitive features.

Weir PW: Reticle/Full-wafer/field/scan/process data modeling for any metrology with advanced process window capabilities. Product is capable of addressing both wafer and photomask process control.

Weir DMA: Macro Automation interface for Weir PSFM and Weir PW for external calling, automated data gathering or one-button analysis of commonly used sequences. Includes data trending.

See us at <http://www.TEAsystems.com> for a free demonstration or evaluation.

News and Information: <http://www.TEAsystems.com/NewsReleases.htm>

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