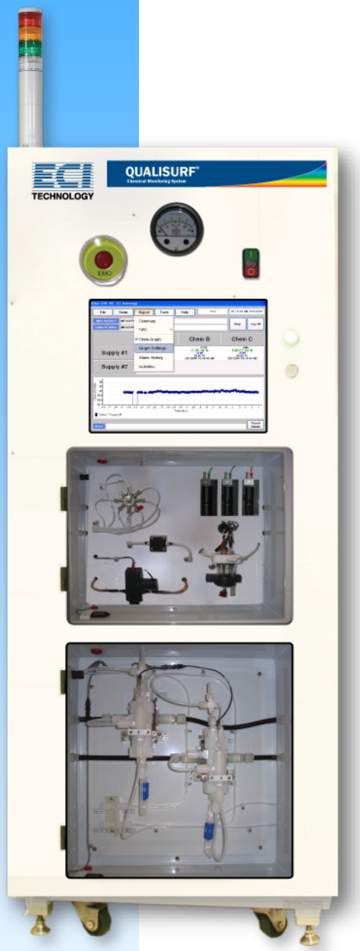
NIR Spectroscopic Monitoring System

Take Control of Your Clean and Etch

Real-time Precise Analysis of Multiple-Component Clean/Etch solutions used in Semiconductor, FPD, LED and Solar Industries



QualiSurf is a high-end real-time NIR analyzer for precise monitoring of multiple-component chemistries. The QualiSurf enables users to maintain the concentrations and ratios of chemical components in wet processing solutions, preventing costly yield losses due to non-optimal chemistry. The same hardware can support numerous challenging applications by using various analytical models, such as: S**C1, SC2, SPM, BOE, DHF, Hot Phosphoric, DSP+, ST-250, CMP slurries, KOH/IPA, HF/HNO$_3$** and many other chemical mixtures used in the Semiconductor, FPD, LED and Solar industries. The analyzer provides instantaneous results which can be transmitted via closed-loop feedback to any single wafer or batch type cleaning tool, to maintain consistent concentrations and etch rates.

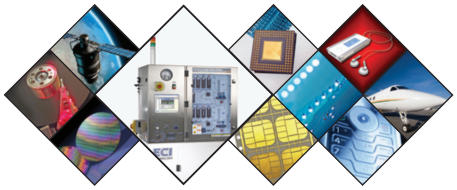
QualiSurf's flow-through analytical cell is integrated into the solution piping, eliminating cross contamination. Light is transmitted through the solutions and the resulting spectrum is collected by our proprietary detector. A unique ultra-low noise spectrometer combined with ECI's proprietary MVA algorithms allow differentiation of even the slightest concentration change in difficult ambiences such as temperature fluctuations, bubbles, and hot solutions. ECI also designed a high end multiplexer to allow monitoring of up to multiple different channels with a single tool, thus providing significant cost savings for the user.

QualiSurf™

Differentiating Even The Slightest Concentration Changes

ECI TECHNOLOGY

We Keep The Chemistry Right.



QualiSurf

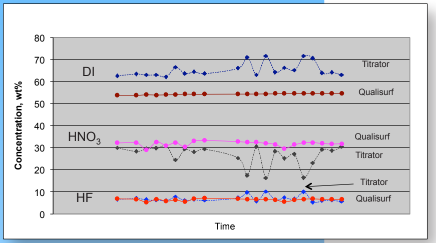
A real time non-invasive monitor for wet processing - measuring concentrations and process performance - that is QualiSurf!

Features and Benefits

- Reporting individual concentrations of multiple-component chemistries
- Superior accuracy and precision
- Etch rate monitoring capability
- Multi-channel capable of controlling up to multiple different baths
- Real-time analyses and continuous monitoring of solutions
- In-line optics probe for incorporation with existing piping of wet processing equipment
- Feedback signals for automatic closed loop control of the process equipment
- Minimal PM requirements
- Built-in temperature compensation
- Proprietary hardware/software combination eliminates and compensates for bubbles in sampling lines

Typical Applications

- Monitoring consistencies of wet processing/surface preparation solutions as the chemicals age
- Controlling point-of-use fresh chemical mixtures
- QualiSurf can be used to predict thin film etch rates of solutions
  - with extensive fab-proven results
- In-line monitoring of particle density in CMP slurries



QSF vs. Titrator
Customer Data

MEASURE H2SO4 in SPM

	H2SO4	H2O2	HF	NH4OH	HF
SPM	H2SO4 11.00 wt% +0.00 6/2/2008 6:34:45 PM	H2O2 4.11 wt% +0.00 6/2/2008 6:34:45 PM			
DHF			HF 2552.40 ppm +0.51 6/2/2008 6:34:46 PM		
SC1		H2O2 4.00 wt% -0.00 6/2/2008 6:34:47 PM		NH4OH 3.25 wt% +0.00 6/2/2008 6:34:48 PM	
DSP+	H2SO4 8.997 wt% -0.008 6/2/2008 6:34:49 PM	H2O2 10.00 wt% -0.01 6/2/2008 6:34:50 PM			HF 149.942 ppm -0.023 6/2/2008 6:34:31 PM

QualiSurf Screenshot

Semiconductor		Photovoltaic Solar Cell	
Cleaning	**CMP**	**Si Texturing, PSG Removal and Edge Isolation**	**Cleaning**
SPM	Particle Density	HF	HF/HCl
DSP, DSP+	Oxidant Concentration	HF/H_2SiF_6	
SC1, SC2		$HF/HNO_3/H_2SiF_6$	
BHF		$HF/H_2SO_4/HNO_3/H_2SiF_6$	
DHF			HF
TMAH		$HF/HNO_3/H_2SiF_6$/ proprietary acid	
$TMAH/H_2O_2$/ cleaner	Copper Contamination		
HF/HNO_3		KOH	
ST-250		KOH/K_2SiO_3	KOH
Proprietary Cleaners	Particle Conglomerates	$KOH/IPA/K_2SiO_3$	
Acid mixture for Metal Etch and Electropolishing		NaOH/Proprietary Cleaner/Na_2SiO_3	
MEA/BDG Stripper		NaOH/ Na_2SiO_3	

ECI will develop applications for customers to analyze proprietary solutions.

Backed by ECI Global Support

ECI TECHNOLOGY

For additional information, call or write:
ECI TECHNOLOGY, INC.
60 Gordon Drive, Totowa, NJ 07512 U.S.A.
Tel: 973•890•1114 Fax: 973•890•1118
email: info@ecitechnology.com
web site: www.ecitechnology.com