

**Honeywell Polish  
Etch I and II for  
Wafer Thinning**

# Honeywell Polish Etch I and II

## WAFER THINNING MATERIALS

### APPLICATIONS

- Used as a contour etch to delineate cracks and scratches; typical etch depth is 0.0003 inch (7µm)
- Relieves wafer box and eliminates stress related breakage due to scratches created with grinding

### OVERVIEW

Honeywell's wafer thinning materials are part of three new product lines (wafer thinning materials, performance cleans, selective etchants) being introduced from its state-of-the-art electronic chemicals manufacturing sites in Chandler, Arizona and Seelze, Germany.



**Honeywell's electronic chemicals manufacturing site in Chandler, Arizona.**

These customized, application specific offerings provide improved cost of ownership (CoO), increased yield and ease-of-use. Our application expertise maximizes customer wafer thinning processes with application development support and troubleshooting know-how while our consistent drum-to-drum and bottle-to-bottle wafer etching characteristics provide unsurpassed batch-to-batch product uniformity. A robust manufacturing infrastructure and application expertise further enable Honeywell to deliver flexible end products, custom-matched to the best chemistry formulations for customer processes and specifications.

### RESEARCH AND DEVELOPMENT

Honeywell and SEZ developed and performed an extensive design of experiment (DOE) to identify the critical chemical and operating parameters necessary to maximize stress reduction associated with post-grinding, etch uniformity and surface morphology of a stress removal process (utilizing a SEZ single wafer processing tool).

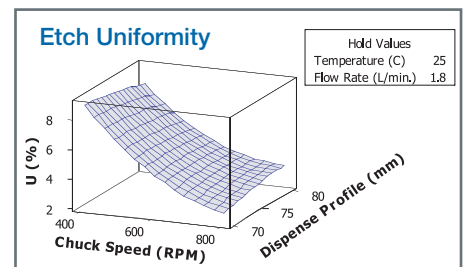
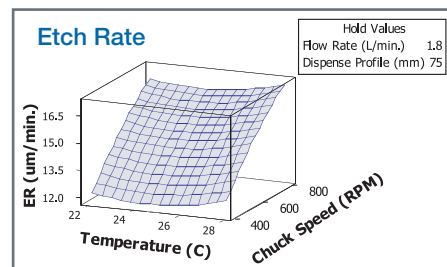
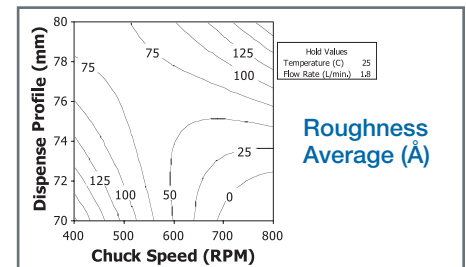
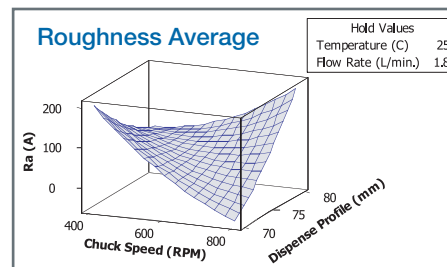
ETCHER PARAMETER	SETTING		
	High	Middle	Low
Temperature (°C)	28	25	22
Chuck Speed (RPM)	800	600	400
Flow Rate (L/min.)	2.0	1.8	1.6
Dispense Profile (mm)	80	75	70

**A stable etch process and consistent etchant are needed to ensure a stable wafer backside etching process**

**Conclusions of this work indicate:**

- **Post etch surface roughness** is primarily a function of the **chuck speed and dispense profile**
- The silicon **etch rate** as well as **etch uniformity** are primarily functions of **chuck rotational speed**

*(See Roughness and Etch Rate data below.)*



**Honeywell Electronic Materials**

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Germany: 49-5137-999-9199

Japan: 81-3-6730-7092

Korea: 82-2-3483-5076

Singapore: 65-6580-3593

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